

VOL. XII. No. 6

MARCH, 1915

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IMPORTANT PHASES IN THE DEVELOPMENT OF BETTER MARKETS : By EARL W. BENJAMIN

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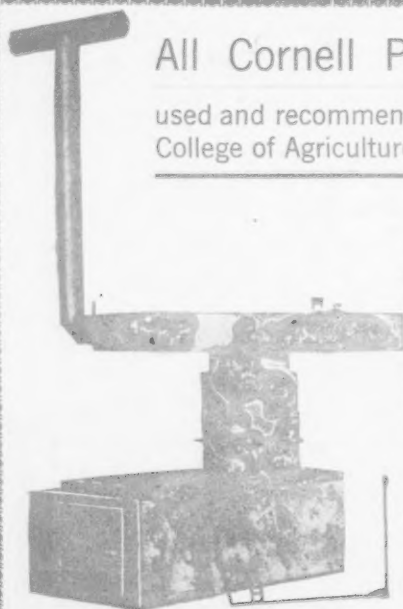
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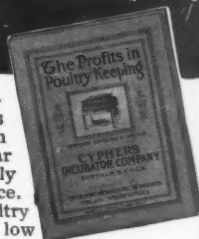
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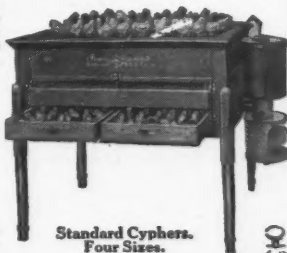
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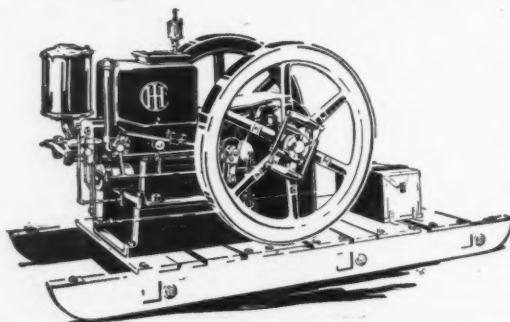
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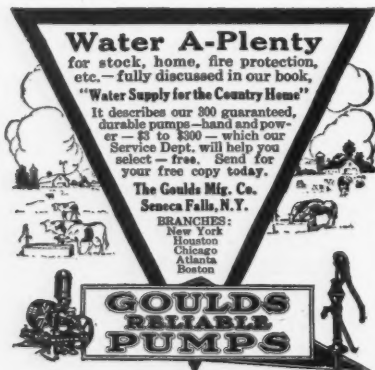
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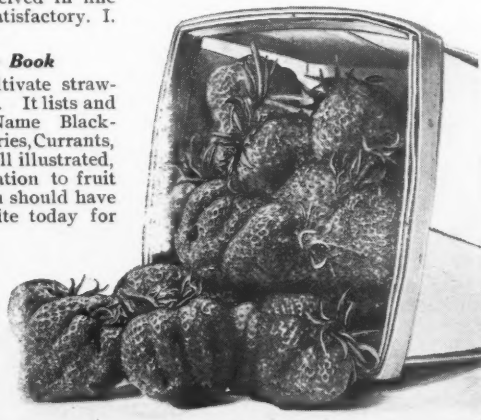
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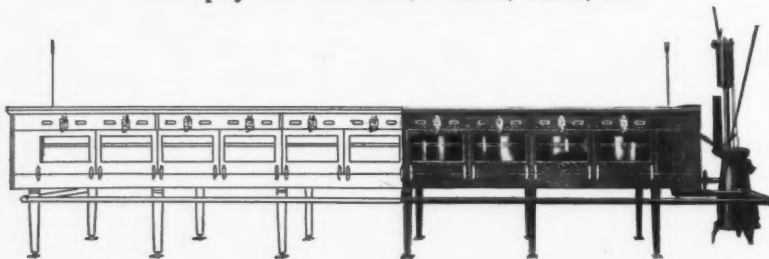
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# THE CORNELL COUNTRYMAN

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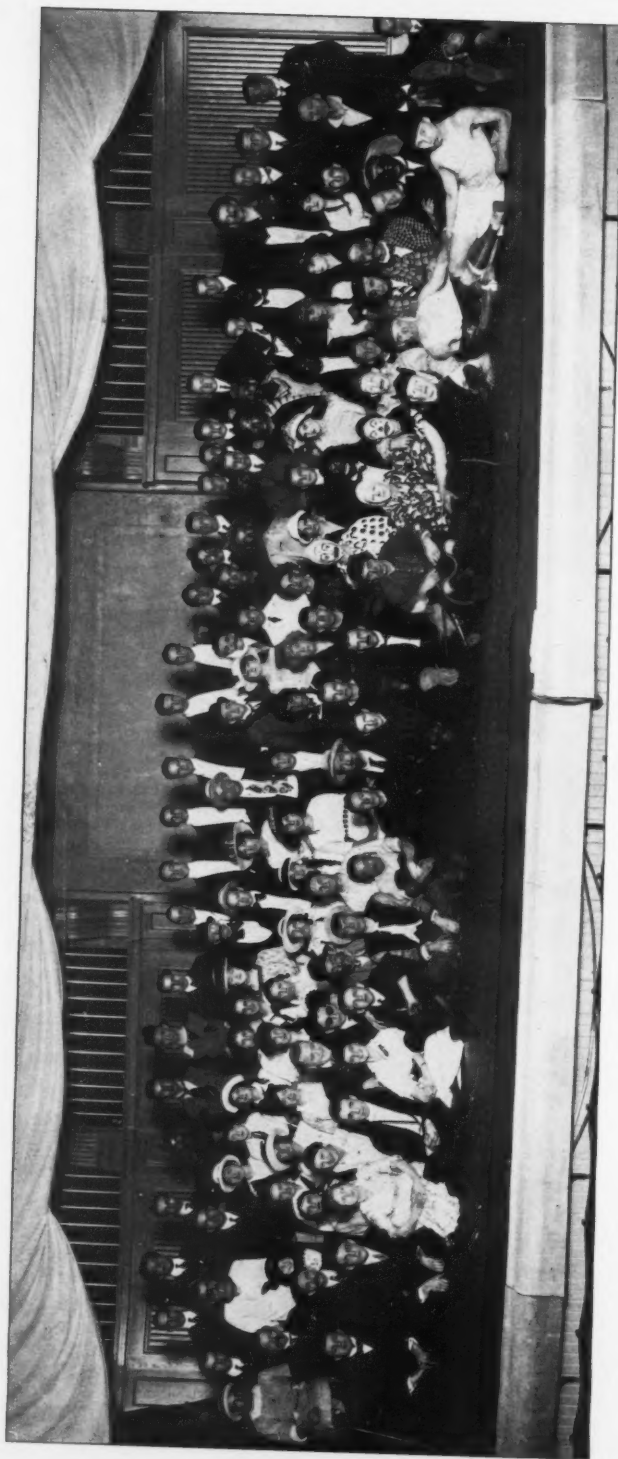
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The Kaimitis Cast. Over 100 students participated in the annual Agricultural Entertainment given Wednesday evening of Farmers' Week.  
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Photo by Cable

# THE CORNELL COUNTRYMAN

Vol. XII

MARCH, 1915

No. 6

## THE DISTRIBUTION OF EGG PRODUCTION

BY JAMES E. RICE, '90

Professor of Poultry Husbandry, in collaboration with O. B. Kent, '12, Instructor  
in Poultry Husbandry, and F. D. Brooks, '17.

New York State College of Agriculture at Cornell University

(To be continued in the April number)

### PART I.

*How does the time of hatching influence the distribution of egg production?*

It becomes necessary, before drawing final conclusions, regarding the laying capacity of fowls, to ascertain whether the production of any particular individual is due to inheritance, or whether it has been modified by the environment. It now appears to be well established that either one or both of these two factors—heredity or environment—may be controlling influences.

Under normal conditions of development and management the domestic fowl should commence to lay when about six to eight months old. However, the time of first production varies with the breeds, varieties, strains and individuals. It is also influenced by methods of feeding, brooding, housing and care. The domestic fowl is, to a very remarkable extent, responsive to her environment. Among the important environmental conditions that influence egg production is that of climate. This is so important a factor that it must be taken into serious consideration in connection with the age at which pullets commence to lay.

Among the more important climatic conditions affecting egg production that surround a flock of fowls during

the various seasons of the year, are excessive heat or cold, protracted drought or rainfall, the number of hours of sunshine or cloudy conditions, which affect the nature of the food supply, the activity of the birds, and their personal comfort and contentment. These, to a large degree, influence the productivity of the birds. So well established has this fact become that the most experienced practical poultrymen now generally understand the great importance of having chickens hatched at a certain time of the year in order to have the pullets reach the normal laying age at a definite time of the year which has been found, by practical experience, to be most conducive to the largest egg yield. It has been observed that with any given variety of fowls in any particular part of the country, if the chickens are hatched too early or too late, that they mature and commence to lay when the climatic conditions are likely to be either too hot or too cold, too wet or too dry, or to involve some other environmental influence that does not satisfy the most desirable conditions for securing a maximum egg yield at a time when eggs are most desired; namely, in this State during the Fall and early Winter months.

If the time of hatching does affect the way in which fowls distribute their production it becomes of vital

importance, in studying the individual records of fowls with regard to inheritance of fecundity characters, to consider the time of hatching of each bird before we pass final judgment on her productive qualities. It is well, also, to inquire, when comparing the productivity of individuals or flocks, not only as to the time of hatching, but also as to the method of rearing, handling and care. This is particularly important where the method of selection is based upon the number of eggs produced by an individual when she has reached a certain age, or at a certain date; for example, when ten months old or by March 1st or the first year etc.

laying. The third group apparently was hatched a little too late to fully mature and commence to lay before extremely cold weather occurred and normally would be expected, except under the most favorable conditions of rearing and desirable fall weather, to give less satisfactory fall and early winter egg yield than the earlier hatches. The annual production of each fowl, the total and the average for three years, is given in Table I. In Figure I is shown graphically the curves of production for each group in four-week periods for three years. The daily production of each fowl for three years, arranged in three groups based on the time of hatching each

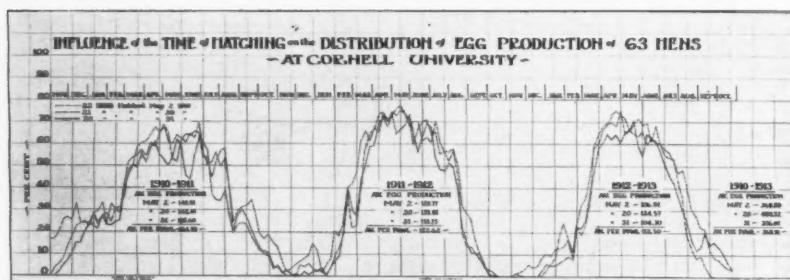


FIG. I.—NOTE THE REGULARITY WITH WHICH THE CURVES OF EGG PRODUCTION RISE AND FALL IN CONFORMITY TO SEASON AND THE TENDENCY OF PULLETS TO COMMENCE TO LAY, AND HENS TO RENEW PRODUCTION IN THE EARLY WINTER AFTER MOLTING.

As a mere suggestion of the importance of knowing the time of hatching as affecting the production of individuals or flocks, some of the results of a study of the distribution of egg production of sixty-three fowls for three years is here shown. The fowls are all Single Comb White Leghorns. They were hatched and reared under essentially similar conditions and include all of the individuals of the flock that lived to complete three years or more. Of the sixty-three fowls, twenty-two were hatched May 2nd, twenty-one May 20th, and twenty-one May 31st. The first two groups were hatched at a time which, in Central New York, normally would be considered desirable for fall and early winter

group, and according to the date the first egg was laid, is shown in Figure II.

It should be understood that the purpose in presenting these data is not to submit proof that the time of hatching is the sole cause of the wide difference in the production of the three groups hatched at different times of the year, but rather to point out the importance of considering the possible influence that the time of hatching may have on the distribution of egg production and the number of eggs laid in any given year or period of years.

The egg production of the May 31st hatch when compared with the average for the three groups shows that the

difference in production is, for the first year, 134.19 as against 118.60 or a difference of 15.59 eggs per hen; for the second year 122.62 as against 112.75, a difference of 9.87 eggs per hen, and when compared to the May 20th hatch, the difference is, for the first year, 142.00 as against 118.60 or 23.4 eggs per hen; for the second year, 133.95 as against 112.75 or an average of 21.20 eggs per hen, and for the third year 124.57 as against 104.70 or a difference of 19.87 eggs per hen, in every instance showing a decidedly smaller average egg yield for the 20 hens in the group hatched May 31st.

A study of Figure II and Table I reveals the fact that a few high record individuals are found in each of the three groups. For example the eleven fowls that laid an average of 150 eggs or more per year for three years laid as follows:

<i>Group I</i>	
Hen No.	Av. per hen for 3 yrs.
7460	= 158.67
7486	= 165.33
7534	= 157.33
7578	= 164.33
7518	= 164.33
<i>Group II</i>	
5702	= 153.67
5697	= 183.67
5626	= 176.33
5727	= 151.00
5653	= 160.33
<i>Group III</i>	
7880	= 151.67
7851	= 151.33

A larger number, and these also higher producing fowls, it will be seen are found in the two earlier hatches. It would appear that the time of hatching of group 3 was a handicap to production not only the first fall and winter but also for the first year and for each year thereafter. Whatever may have been the cause of this difference in production, whether time of hatching or heredity, the result is certain that in this one instance the May 31st hatch, gave a much lower yield. This might be due to a difference in the natural productivity of the fowls in the third group as compared to each of the other groups, or it is possible, in fact, quite probable,

that the difference in yield may be attributed to the seasonal conditions affecting the growth of the chickens or their productivity.

It will be seen by referring to Fig. II that a majority of the pullets in each group began to lay essentially in the order of the dates when they were hatched, and that some of the late-to-lay pullets in the early hatches did not commence to lay until after the earlier-to-lay pullets of the later hatches began to lay. It indicates the desirability of hatching chickens at various times during the best hatching season of any region with the expectation of securing a better distribution of production throughout the fall and winter than one would be likely to secure if all the chickens were to be hatched at the same time or within a short period of time. A careful examination of the daily and monthly records of various fowls in each group as shown in Table I and Fig. II will indicate that after a fowl has laid heavily for a considerable length of time, there is a tendency to decrease in production, and to rest or to become broody. It is desirable, therefore, to have the time of hatching so arranged that when one flock is declining in production, other flocks, hatched a little later, are commencing to lay. By so doing, it is apparent that under normal conditions one may expect to secure and maintain a fairly uniform daily production, by arranging to have his hatching properly timed to fit the season in the particular region in which he lives. It is reasonable to suppose that the same difference in egg yield might not occur every year between flocks hatched May 2 and May 20 and May 31st, as is shown in the data here studied. The environmental conditions are not likely to be the same each year. Hence, hatching at the same date each year would not of necessity be expected to give the same comparative results as here shown. If the records of flocks hatched at widely different times, ranging from March 1st to July 1st were to be compared, unquestionably





DISTRIBUTION OF CALENDAR YEAR EGG PRODUCTION OF 63 S. C. WHITE LEGHORNS FOR THREE YEARS AT CORNELL, ARRANGED IN THREE GROUPS ACCORDING TO DATE OF HATCHING AND IN EACH GROUP ACCORDING TO THE PRODUCTION OF FIRST EGG.

Illustrated graphically in Fig. I "Influence of time of hatching on the monthly distribution of egg production," and Fig. II "Daily Distribution of Egg Production" and Figs. III and IV, Part III April number "Cornell Countryman", showing the fluctuations in rating of fowls according to eight methods of comparing their relative productivity.

TABLE I.

*Group I—Twenty-seven fowls, Twenty-two of which lived three years. Hatched May 2.*

Band No.	Egg Production			Total 3 yrs.	Average 3 yrs.
	1st yr.	2nd yr.	3rd yr.		
7460	203	150	123	476	158.67
7486	212	153	131	496	165.33
7523	141	123	126	390	130.00
7469	118	104	124	346	115.33
7484	117	111	114	342	114.00
7317	144	120	86	350	116.67
7472	157	112	92	361	120.33
7542	97	112	92	301	100.33
7360	136	(74)			
7420	155	(4)			
7370	123	64			
7543	179	82	83	344	114.67
7534	190	155	127	472	157.33
7477	173	147	119	439	146.33
7503	157	127	137	421	140.33
7540	150	137	120	407	135.67
7513	129	134	147	410	136.67
7518	221	163	109	493	164.33
7473	116	106	82	304	101.33
7538	105	114	87	306	102.00
7455	138	107	105	350	116.67
7549	151	152	(126)		
7536	138	124	108	370	123.33
7510	134	175	(87)		
7504	83	86	57	226	75.33
7403	87	115	114	316	105.33
7511	45	75	69	189	63.00
Total	3799	3048	2352	8109	
*Av.	140.70	121.92	106.91	368.59	122.86

*Group II—Twenty-eight Fowls, twenty-one of which lived three years. Hatched May 20.*

Band No.	Egg Production			Total 3 yrs.	Average 3 yrs.
	1st yr.	2nd yr.	3rd yr.		
5702	187	147	133	467	155.67
5697	243	162	146	551	183.67
5642	161	132	115	408	136.00
5695	120	112	107	339	113.00
5726	(82)				
5647	186	139	(117)		
5713	103	(99)			
5626	197	173	159	529	176.33

*Group II—Twenty-eight Fowls, twenty-one of which lived three years. Hatched May 20.—Continued.*

Band No.	Egg Production			Total 3 yrs.	Average 3 yrs.
	1st yr.	2nd yr.	3rd yr.		
5719	147	113	112	372	124.00
5675	148	136	155	439	146.33
5727	169	139	145	453	151.00
5653	155	175	151	481	160.33
5320	138	133	148	419	139.67
5705	111	123	123	357	119.00
5624	124	137	102	363	121.00
5634	115	170	145	430	143.33
5657	(90)				
5709	133	(52)			
5633	159	114	133	406	135.33
5720	97	(16)			
5681	86	54	54	194	64.67
5707	155	127	96	378	126.00
5674	148	165	132	445	148.33
5685	68	80	82	230	76.67
5680	87	140	108	335	111.67
5650	113	139	137	389	129.67
5621	108	(113)			
5708	151	142	133	426	142.00
Total	3609	2952	2616	8411	
*Av.	138.81	134.18	124.57	400.52	133.51

*Group III—Twenty-two fowls, twenty of which lived three years. Hatched May 31.*

Band No.	Egg Production			Total 3 yrs.	Average 3 yrs.
	1st yr.	2nd yr.	3rd yr.		
7859	149	138	115	402	134.00
7582	127	112	95	334	111.33
7872	117	110	122	349	116.33
7860	106	72	58	236	78.67
7683	86	98	96	280	93.33
7880	151	145	159	455	151.67
7697	169	121	103	393	131.00
7566	(157)				
7897	137	124	139	400	133.33
7700	152	135	141	428	142.67
7873	128	140	87	355	118.33
7874	137	151	(40)		
7851	147	154	153	454	151.33
7561	164	137	117	418	139.33
7668	106	101	114	321	107.00
7575	153	128	124	405	135.00
7579	80	60	71	211	70.33
7675	140	149	131	420	140.00
7658	45	53	65	163	54.33
7865	70	84	71	225	75.00
7852	76	75	80	231	77.00
7680	69	119	53	241	80.33
Total for Group					
III	2509	2406	2094	6721	
*Av.	119.48	114.57	104.70	336.05	112.02
*Av. of 3 grps.	134.01	123.62	112.10	368.90	

\*Average includes all those fowls that completed full year records. Incomplete years are shown in ( ).

even wider contrast in production than here shown would be found. The pullets that were hatched too early would be expected to commence to lay in July or August and would be likely to molt in October and November, whereas those that were hatched too late would not be fully feathered and matured before the cold weather of November and December set in and as a result would be likely to be unproductive until toward spring.

The observation of flocks not included in the data here shown justifies the belief that the time limits for hatching Single Comb White Leghorns, to secure the most satisfactory results in fall and winter laying in the region of Central New York, one year with another, is about the first week in April to the last week in May.

Some interesting lessons in distribution of egg production may be drawn from the variations in the curves of production, Figure I, for each flock each month each year, and for the same curve in succeeding years and in Fig. II showing by the "inked-in" spaces the days when each hen laid. The months of most favorable production each year it will be seen are the middle of March to the middle of July, and the lowest production is uniformly during those seasons of most unfavorable climatic conditions; namely, the middle of September to the middle of January. Each succeeding year the hens decrease the percentage production during the unfavorable season and lengthen the period of low production, while maintaining as high or higher percentage egg yield for a shorter and shorter time during the favorable season. In other words, the older the fowls become, the slower they are to commence to lay in the fall and the earlier they are to cease to lay toward the close of the year the following fall, and also, the older the fowls are, the shorter becomes the period when high production is secured until, eventually, it is found that very old fowls lay less and less percentage production each year and that these eggs are laid only during the natural mating season, which is

also the most favorable season of the year. This period, in New York State, is April and May, but differs very materially in various regions of the country.

## PART II

### *In what year do hens normally lay their highest, medium or lowest production?*

It is apparent from studies of egg production, that hens differ widely in the manner of distributing their egg yield over a period of years. This apparently is both an individual and a breed or variety characteristic. A study of Table II will show how the annual egg yield of 169 S. C. White Leghorn fowls varies under central New York conditions and Cornell University methods. For the sake of comparison the fowls are classified into several groups, based on the year when they made their highest, medium or lowest production each year for three years. Nine combinations, not including those in which the yield is the same for any two years, are possible and are used in Table II as follows:

	1ST YEAR	2ND YEAR	3RD YEAR
1st,	highest	medium	lowest
2nd,	lowest	medium	highest
3rd,	highest	lowest	medium
4th,	lowest	highest	medium
5th,	medium	highest	lowest
6th,	medium	lowest	highest ; and so on.

To make the group comparisons clearer a different kind of type is used in Table II, to indicate the years when each group made its highest, medium or lowest production. It will be seen that by far the larger number of the 169 fowls under consideration, namely, 47.34% fall into the class that lay in the order of most eggs the first year (158); less the second year (127); and least the third (102), a total for three years of (389.19); and that only 4.73% lay in the order of least the first (91); more the second (107); and most the third year (115), a total for three years of 314.13 eggs. The third, fourth and fifth groups are equal in point of numbers, namely, 12.43% each, the third group laying the most the first year (149) eggs; least the second

year (111); and more the third year (120), a total for three years of (382.19) while the fourth group laid least the first year (95) eggs, most the second (134) and medium production the third year (119), or a total of 349.29 eggs in three years.

The fifth group laid medium production the first year (119); highest the second year (133), and lowest the third year (99), a total of 352.33 eggs for three years, whereas in group 6 they laid medium production the first year (130) eggs; lowest the second year (121), and highest production the third year (138), a total of 389.82 eggs for three years, which was the highest average production of any of the first six groups mentioned. The other five groups can scarcely be compared with the six preceding groups because of the fact that the same number of eggs were laid each year for two years. It is interesting however to note, that the highest total yield for three years was in group 10, where the record of only one fowl is shown which laid a high average sustained yield for three years (147) the first, (147) the second and (132) the hen, third or a total of 426 eggs. This however, was not the highest producing individual among the 169 under observation. The two most prolific hens are in groups 3 and 5.

The uniformly high yield of hen Number 3418 "Cornell Supreme" of (222) 1st year, (223) the 2nd year, (220) the third year, an average of (221) each year, or a total of 665 eggs for three years is remarkable. The very high producing birds are found more largely in groups 1, 3 and 5. The egg production of the ten more prolific hens for three years is as follows:

	Band No.	1st yr. Prod.	2nd yr. Prod.	3rd yr. Prod.	Ave. Prod. for 3 yrs.
Grp. I	3113	200	167	162	176.33
	5626	197	173	159	176.33
	5697	243	162	146	183.67
	8362	206	175	117	166.00
	8483	201	175	140	172.00
Grp. III	3211	248	200	201	216.33
	3352	230	146	163	179.67
Grp. IV	8520	163	202	172	179.00
Grp. V	3418	222	223	220	221.67
Grp. VI	8686	192	178	197	189.00

The groups that made their best production in their first year, as shown in Table II, namely, groups 1 and 3, representing 59.77%, and those that made their best records in the second year, groups 4 and 5, namely, 24.86%, or a total for the four groups laying their most the first or the second year 84.63%, clearly includes most of the exceptionally high producing birds of the first six groups where three year records are compared.

TABLE II

Group Symbol	No. of Hens	% of Total	Average Product 1st yr.	Average Product 2d yr.	Average Product 3rd yr.	Total Ave. Product 3 years	3 yr. Rating of Groups
I	80	47.34	158.68	127.60	102.91	389.19	(3)
II	8	4.73	91.00	107.88	115.25	314.13	(8)
III	21	12.43	149.86	111.95	120.38	382.19	(4)
IV	21	12.43	95.48	134.29	119.52	349.29	(7)
V	21	12.43	119.05	133.90	99.38	352.33	(6)
VI	11	6.51	130.45	121.27	138.09	389.82	(2)
VII	1	.59	86.00	54.00	54.00	194.00	(10)
VIII	2	1.18	100.00	129.50	129.50	359.00	(5)
IX	2	1.18	58.50	58.50	63.50	180.50	(11)
X	1	.59	147.00	147.00	132.00	426.00	(1)
XI	1	.59	80.00	72.00	80.00	232.00	(9)
Total for all groups	169	100.00	136.92	124.48	109.18	370.57	

Distribution of Egg Production by One Year Periods as an Indication of Prolificacy Three Calendar Year Record of 169 S. C. White Leghorn Hens at Cornell University.

It will be seen that Group 6, containing eleven fowls, or 6.51%, by well sustained, moderately high yield for three years, attained a rank of second place among the six groups, based on three years' production. In making selections for the breeding flock, one must give reasonably good hens the "benefit of the doubt". Many of these, by maintaining a high or a medium to high average production for a period of years, frequently make exceptionally good records as long-distance-laying hens. From the records of such hens as the fifteen selected from Table I, whose records follow, Table III we are forced to realize that we should not so far lose ourselves in our quest for the so called "200 egg hen" that we fail to appreciate and give full credit to the staying qualities of the "150 egg hen". Perhaps herein lies our greatest hope for permanent development of the most profitable strain of fowls for egg production.

THE ANNUAL EGG PRODUCTION OF FIFTEEN FOWLS WHOSE RECORDS FOR THREE YEARS ARE OVER 400 EGGS PER HEN AND NINE OF WHICH DID NOT EXCEED 150 EGGS PER HEN THE FIRST YEAR.  
(From record of 63 hens Table I).

TABLE III

Leg Band No. of Fowl	First Yr. Egg Production	2nd Year Egg Production	3rd Year Egg Production	Egg Production for Three Years
7897	137	124	139	400
7859	149	138	115	402
7573	153	128	124	405
7540	150	137	120	407
7513	129	134	147	410
5320	138	133	148	419
7675	140	149	131	420
7503	157	127	137	421
5708	151	142	133	426
7700	152	135	141	428
5675	148	136	155	439
5674	148	165	132	445
7851	147	154	153	454
7880	151	145	159	455
5653	155	175	151	481

It is apparent, from these records, that if one selects the birds that made their highest or very high records either in the first or second year, he will be likely to secure most of the high producing fowls in the flock.

We hear much about breeding from

the "highest," "medium," or "lowest," producing birds. There is practically no agreement among poultrymen as to just what these terms,— "highest," "medium," "lowest," signify. To one person "highest" means two hundred, or one hundred and seventy-five, or one hundred and fifty eggs per year: to another it means three hundred or three hundred and fifty, or four hundred eggs in two years, or perhaps four hundred and fifty, five hundred and fifty, or six hundred and fifty eggs in three years, or thirty eggs or more by March 1st, or thirty-five or more at ten months of age, etc. There are nearly as many opinions on this question as there are persons expressing them. If practical poultrymen and investigators alike are not agreed as to the number of eggs that hens should be expected to lay within any particular time, or the length of time that should be taken as a reliable measure of a hen's productive capacity; what, then, shall be the standard and what shall be the terms to describe differences in laying capacity? Shall our measure be applied to the number of eggs laid within a short or long span of time, and where shall the line be drawn that is to separate the high from the medium and the medium from the low producing individuals? If it were found that fowls at all ages are, consistently high, medium or low producers the problem would be comparatively simple. It is found, however, as these data clearly show, that not only do hens vary between wide limits in the number of eggs that they lay when compared with one another, but the production of each individual varies radically during various periods of her life (Tables I, II, III, IV, V and VI). This makes it doubly difficult to decide upon any particular number of eggs that a high, medium or low producer should lay in order to fall into any specified group, and equally difficult to decide upon a definite time or times in the life of a fowl when one would be certain or be likely to get the most reliable estimate of her laying power.

\*EGG PRODUCTION OF SIX HIGHEST, SIX MEDIUM AND SIX LOWEST PRODUCING FOWLS FOR THREE YEARS.

TABLE IV.

Rating of 38 hens based upon the first 10 months' production from date of hatching and shown number of eggs laid per hen per year for a period of years.

Six Highest Producers.	Age laid 1st egg.	First 10 months.	To March 1st.	1st year.	2nd year.	1st and 2nd years.	3rd year.	1st, 2d and 3rd yrs.
3352	180	92	69	230	146	376	163	539
3211	202	71	56	248	200	448	201	649
3418	206	64	50	222	219	441	220	661
3687	199	58	46	202	146	348	121	469
3113	220	57	42	200	167	367	162	529
3511	213	54	40	179	96	275	97	372
Six medium Producers								
3097	210	33	35	147	96	243	73	316
3079	207	32	32	169	168	337	112	449
3336	188	31	15	143	117	260	104	364
3075	209	29	31	144	117	261	103	364
3189	240	28	15	126	147	273	130	403
3477	254	26	15	148	161	309	144	453
Six lowest Producers								
3276	258	12	6	106	126	232	145	377
3072	208	11	14	126	137	263	140	403
3332	296	6	0	53	60	113	41	154
2976	292	3	3	113	105	218	111	319
6087	292	1	0	89	156	245	140	385
3695	313	0	0	66	154	220	129	349

TABLE V

"Rating" of 38 hens based upon Egg Production of Six Highest, Six Medium and Six Lowest Producing Hens for a period of years.

Six Highest Producers								
3352	1	1	1	2	10	3	3	3
3211	7	2	2	1	2	1	2	2
3418	12	3	3	3	1	2	1	1
3687	6	4	4	5	11	5	13	5
3113	23	5	5	6	4	4	4	4
3511	18	6	8	8	30	13	24	17
Six medium Producers								
3097	17	17	11	15	31	23	34	28
3079	14	18	14	10	3	7	17	8
3336	5	19	23	20	23	19	21	19
3075	16	20	15	18	24	18	22	20
3189	28	21	24	23	9	14	9	12
3477	30	22	25	13	5	9	6	6
Six lowest Producers								
3276	31	33	32	32	16	27	5	16
3072	15	34	28	24	13	17	7	13
3332	37	35	36	38	38	38	37	38
2976	36	36	33	28	26	30	18	27
6087	35	37	37	35	6	22	8	14
3695	38	38	38	36	7	28	10	21

\* From continued article on "Distribution of Egg Production," CORNELL COUNTRYMAN, February, March and April, 1913.



THE DIFFERENCES IN EGG PRODUCTION OF CERTAIN FOWLS FOR THREE YEARS.  
TABLE VI.

Hen No.	First 10 months.	1st Year.	2nd Year.	1st and 2nd Years.	3rd Year.	3 Years.
3211	71	248	200	448	201	649
3352	92	230	146	376	163	539
Dif.	- 21	+ 18	+ 54	+ 72	+ 38	+ 110
3516	53	173	136	309	114	423
3079	32	169	168	337	112	449
Dif.	+ 21	+ 4	- 32	- 28	+ 2	- 26
3189	28	126	147	273	130	403
3249	25	123	90	213	92	305
Dif.	+ 3	+ 3	+ 57	+ 60	+ 38	+ 98
3276	12	106	126	232	145	377
3348	14	91	93	184	51	235
Dif.	- 2	+ 15	+ 33	+ 48	+ 94	+ 142
2976	3	113	105	218	111	329
3498	45	113	82	195	91	286
Dif.	- 42	0	+ 23	+ 23	+ 20	+ 43

The records of egg production for individuals or groups for one, two or three or more years, or two or three or more years combined, show conclusively that fowls differ in the number of eggs that they lay, whether we consider their records for a short or a long period of time, and that these differences vary in the case of the records of 169 fowls (Table II) from no eggs to 248 for the first year, from no eggs to 223 eggs the second year, from 3 eggs to 220 the third year, and from 3 eggs to 665 in three years.

It is also shown that egg production varies by differences of only one or more eggs per hen when we compare them by any of the known methods of rating. It seems clear, therefore, that fowls do not fall into any well defined classes or groups, such as "high" "medium" or "low" producers, into which all or any considerable number of fowls might be placed. Hence, it remains for man to classify fowls according to their production into such groups as best serve his particular purpose, with the understanding that there can be no clean-cut line dividing the high from the medium and the medium from the low producers. It should also be understood that, in the absence of any natural grouping, if any arbitrary system of classification be adopted for any particular period of time, that the hens would have to be reclassified whenever their records

for a different period of time is considered. Just because a hen lays more eggs than another for one year, does not necessarily indicate that she will be a better producer than the other the next year. This fact is clearly indicated in Table VI, where the relative merits of several fowls are compared with reference to one another for a period of years. The "plus" and "minus" marks indicate whether or not a hen is higher or lower in her production than the one with which she is being compared.

The way in which each fowl varies in her egg production, month by month and year by year, and the way in which fowls of the same variety, age, breeding and care differ in their laying powers from one another, makes the problem of deciding what particular birds should be honored or discredited in mating up our breeding pens or working out our breeding equations an exceedingly hazardous undertaking. The fact that man has placed upon the hens the responsibility of living up to the good or bad "character" that he has given them in his formulas on the assumption that, as layers, they possess the high, medium or low, or absence of fecundity character is asking a good deal of innocent subjects. The responsibility is greater than most persons or hens will care to assume with our present knowledge of the laws governing inheritance of the fecundity character.

# IMPORTANT PHASES IN THE DEVELOPMENT OF BETTER MARKETS

BY EARL W. BENJAMIN '11

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IS it any wonder that our markets are in a chaotic condition? I refer to the condition as chaotic because it is decidedly unorganized; we have not been able, for the most part, to digest the principles which should guide our move. The present systems, or rather methods, since we cannot dignify them by the term "system," have just naturally developed along the lines of least resistance. They were never "hatched," they just grew. They are natural fruit, borne upon the ungrafted stock with roots extending back to the beginnings of trade relations between men.

Poultry products are perishable so the poultrymen should be intensely interested in the very best method of selling them: For the same reason the consumer should be vitally interested in the very best method of buying them. Here, I say "should be interested" because that is all that can be said up until very recently. We have all been asleep! not a single man awake! until a while ago the residents of our large cities were startled to find that the cost of food products was becoming prohibitive. The wave of inquiry relative to the *High Cost of Living* rolled up to the shop of the middleman; here no satisfaction was obtained because it was found that the great mass of middlemen were making only meagre profits. The inquirers were respectfully referred to the farmers, but here they received their most serious disappointment when they learned that the farmers were scarcely making a living and had in many cases abandoned all hopes of doing better, moved to the city, and even found themselves, a few years later, one of this same crowd of inquirers.

This was indeed chaos: The baffled

inquirers turned upon themselves; they blamed each other, and everybody else. Some blamed the extravagances of the consumers; others the increased population; different money values; dishonest middlemen; too many dealers; losses due to deterioration; poor farming methods; gradual depletion of the humus; not enough farmers; railroad freight

A STUDY OF THE PROBLEMS AND FACTORS INVOLVED FROM THE CONSUMER'S VIEWPOINT



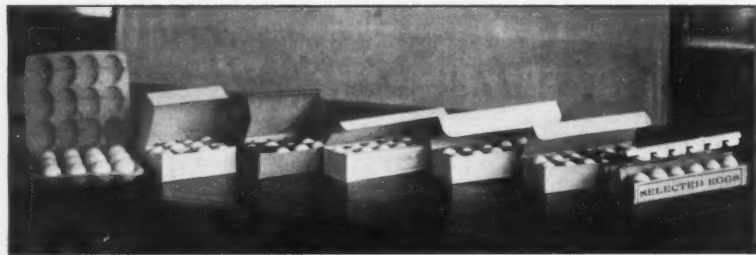
It is the problem of the producer to satisfy the consumer. A glance at the complexity of the consumer's interest shows us at once the impossibility of the average producers attempting to deal direct with the consumer.

rates, express rates; expensive delivery systems; tariff; laziness and negligence of the age; and everything else imaginable and unimaginable. Since this baffling and asundering of the united forces of public sentiment, every thinker has developed individual ideas of how the buying and selling markets might be improved. These ideas usually provide for larger relative returns for the producers and lower relative charges to the consumers.

It is a general principle that the longer a perishable product is held, or

the more times it is handled, the poorer will be its quality and the higher will be its price. This furnishes fertile soil for the development of an apparently simple market

we look at the methods employed in marketing many manufactured products such as shoes and clothes; special stores are being established by the manufacturers where their own



THE CONSUMER IS NOW DEMANDING THAT HIS EGGS BE CONTAINED IN SANITARY CARTONS

scheme, whereby the consumers and producers shall deal directly together. This was the condition when trading began during the past ages, and during the early days of our own country. Business then was so simple and so limited that every consumer could meet the producer of his products and select these products according to his own fancies. Time was then cheap; our social life was not so exacting; the market place was sort of a social gathering place; telephones were not available; the people were a race of producers, *i. e.*, they were not far removed from the soil; their wants were not extensive; they were satisfied with the quality of product received.

Conditions have now changed and we must accept this fact with all its meaning. It means that the interests of both the men and the women have become so urgent and so complicated that certain of these interests are being continually split off and left for specialists to manage. Thus experts do the tailoring, barbering, road making, shoe making, wagon building, horse shoeing, doctoring, preaching, running our errands. Experts are doing our manufacturing, and to some extent our farming. This same tendency towards specialization is bound to take hold of our marketing. It is taking hold, as will be at once seen if

products are handled and where the producers get in closer touch with the customers through an expert salesman. The handling of these non-perishable products, however, offer a problem differing greatly from the problem of marketing perishable products.

In the scramble for a solution to the market problem it was at first suggested that *the middlemen should be eliminated*. This was the cry on every hand, and public sentiment was at once in favor of direct shipments of products from the producers to the consumers. These shipments have proved very satisfactory in some cases but often dissatisfaction arose and justly too, for both parties. Neither the producers nor the consumers were yet sufficiently educated regarding the factors having to do with the quality of food products. The producer did not understand grading and packing and the consumer did not understand how to keep a surplus if she received more than she needed at once. The few instances where direct shipping has succeeded have, however, served to interest both parties in the improvement of conditions and have, on that account, been of great benefit.

Another sign of the times is the recent movement for the establishment of public markets all over the country.

This is another effort to affect the direct dealings between the producers and the consumers. The public market is a replica of ancient customs. It is an effort to have the housewives follow the customs of their ancestors, go to the market and deal directly with the producers of the farm products. It is an ideal arrangement if conditions existed today as during colonial times. But the times have changed.

The great benefit accruing from the public markets now being established is the *Education*. Every trip a housewife makes to the public market means that she is going to learn that eggs cannot be judged by their freshness, nor the fact that they come straight from the farmer's hands: She will learn how to recognize the various cuts of meat and the various qualities of dressed poultry. On the other hand, every criticism that the producer receives is a pointer for him. It drives home to him the fact that

get fresh products in no other way.

The public demanded parcel post as a means of stimulating direct trading, and it was obtained. For a few years we have been developing desirable packages for use in sending perishable products by this means. The natural limits to direct dealing seem to be such factors as inconvenience of ordering, damage during transit, expense of package, necessary accounting for both parties, losses due to irresponsible customers, and impatience of both the producer and the consumer. Such factors have probably been the cause for the slow development of the many direct-dealing ideas.

If the public market happens to be controlled by an organization, here is an opportunity for the efficient serving of the community. We then have an organization simply depending upon the farmers and consumers to maintain the business of the organization by trading within the confines of the market. This organization will then



MANY DESIRABLE TYPES OF PARCEL POST PACKAGES HAVE BEEN DEvised FOR THE USE OF THE PRODUCERS IN SHIPPING DIRECT TO PRIVATE CUSTOMERS

everything isn't perfect just because it is produced on his farm. The public market with its customary features of direct dealing and non-deliveries, will always have this educational value and will always prove a blessing to the poorer classes who can

soon perceive that it is a waste of time for the individual farmers to come in, each with his own few products, and wait for the customers to buy: It will be noted that the grossest kind of delivery duplication is caused by each housewife delivering her own pro-

ducts: It is a waste of energy to have each housewife hunting through the whole market for the particular quality of product that she wants. These and many other features will be noted by the organization and they will then develop an organization controlling a sales room, where the products will all be combined into certain few and definite grades; experts will be employed for standardizing the

both. He is one, not three or four, each to be supported by handling the same product.

The progressive middlemen realize that the efficiency of their work is seriously handicapped by the presence in the field of scores of *illegitimate bargainners* who insert themselves between the wholesale and the retail dealers. It is the advantage of everyone that the trade routes for our pro-



(COPIED FROM CENSUS REPORTS). NEW YORK CITY IS THE NATURAL CENTER FOR THE POULTRY PRODUCTS OF THE COUNTRY. THE GREAT BULK OF THESE PRODUCTS ARE BEING PRODUCED IN THE MIDDLE WEST, AND MODERN METHODS OF HANDLING ARE BEING RAPIDLY DEVELOPED. A CAREFULLY OUTLINED PLAN OF MARKETING WOULD BE OF INESTIMABLE VALUE FOR THE DISTRIBUTION OF THESE PRODUCTS.

products according to these grades; the farmer delivers his goods to the market but does not wait to sell them; the housewife can order products of these different grades intelligently over the telephone or in person; certain regular deliveries will be made covering definite areas to avoid duplication of routes. Now we have a middleman of the highest type of efficiency.

This middleman is the same as all other middlemen should be. He is serving to connect the producers with the consumers. He is an economic necessity in order to properly connect these parties to the satisfaction of

ducts be outlined, and kept under the control of responsible men. The important question is not whether the business is done by a private enterprise or a cooperative organization; the question is, how are the products cared for, and are they carried from the producers to the distant consumers in the most efficient way?

We look to the business men themselves to solve this problem. Many of them are placing their shoulder to the wheel and are doing it. The writer is acquainted with several of these men who are working unceasingly for a betterment of our market methods. They are doing the same



thing in their communities that the Poultry Producers' Association and other marketing organizations are attempting to do in other communities. Middlemen in some form are necessary. The only desirability for the establishment of a new marketing agency must be the fact that the present one is unwilling to improve. Give our present middlemen a chance to meet the situation before deciding against them.

After our present middlemen are given an opportunity to develop their organization and correlation in accordance with the desires of the producers and the consumers, a system will be gradually developed whereby

the products are collected at shipping stations in the country by one agency; received and distributed to the consumers by another agency; and all this done with a degree of efficiency and punctuality possible only after radical changes from our present methods.

Education must precede these changes. The producers, middlemen, and consumers all need it. We must understand every phase of this work and thus be ready to urge good developments and to discourage useless ones. Interest yourself in the route of the products you sell or buy. Improve this route if you can.

## COST OF POULTRY FEEDS

BY A. B. DANN, '14.

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THE enormous exportation of cereals to the warring countries of Central Europe within the past month or two has caused such a rapid rise in the price of wheat that poultrymen everywhere are asking for a substitute to accompany corn and oats as the grain for poultry. We have long ago given up wheat as a feed for the dairy cow, horse, sheep or hog, but because of the very delicate, highly efficient machine with which the poultryman has had to deal, he has been willing, and could well afford to pay the high prices asked for wheat. It has been called the "ideal" poultry food. It is ideal in many respects—in size and color of kernel, in flavor, in its ease of digestion due to the physical condition, and in its nutritive ratio, all of which have added to the value of wheat as an egg producing feed. But even these factors cannot overbalance the excessive cost, since after all it is not so much "how many eggs" as "what is the cost per dozen of producing those eggs?"

A year ago last fall a survey was made of rations for laying hens as recommended by some twenty-five

different experiment stations in the United States, Canada and abroad. The remarkable thing about the summarized results was the wide variety of the grains used and the wide difference in the nutritive ratio of these rations. There were twenty-nine different feeds recommended and the nutritive ratio, i.e. the ratio of the number of pounds of protein to the number of pounds of carbohydrates and fat—varied from 1:3.9 up to 1:6.9.

From these variable figures, and because of the meager knowledge we have of the hen's digestive power or capacity it is pretty safe to assume that after furnishing the minimum requirement of protein and the highly desirable variety of good, wholesome, palatable poultry feeds, we should work out our egg producing ration almost entirely on an economical basis. That is to say, we should feed those grains and mash foods that are readily available and can be purchased at the lowest cost per one hundred pounds of total nutriment or per unit of producing value.

The following table is worked out

on this basis. Because we have so few digestible coefficients worked out for poultry, it seems advisable to use those for cattle, although it is realized that they are only approximately accurate.

The second column gives the total nutriment of the various feeds listed in column I. This total nutriment is found by adding the total digestible protein and carbohydrates to the total fat multiplied by two and one-fourth. ( $\text{Protein} + \text{C. H.} + (\text{Fat} \times 2\frac{1}{4})$ ). It is considered that one pound of fat is worth as much as two and one-fourth pounds of either protein or carbohydrates.

The third column shows the present local price of the feeds per 100 pounds, and the last column shows the computed cost of 100 pounds of total nutriment.

Feed	Total Nutriment in 100 lbs.	Price per 100 lbs. Feed	Cost per 100 lbs. Tot. Nutriment
Corn	84.3	\$1.60	\$1.90
Oats	67.7	1.85	2.73
Wheat	79.7	2.50	3.14
Buckwheat	61.7	1.50	2.44
Barley	77.3	1.70	2.20
Peas	74.2	2.50	3.37
Corn Meal	78.3	1.60	2.04
Ground Oats	70.9	1.85	2.61
Wheat Midds.	68.8	1.70	2.47
Wheat Bran	55.5	1.50	2.70
Alfalfa Meal	52.8	2.00	3.79
Gluten Feed	80.6	1.65	2.05
Buckwh't Midds.	73.9	1.60	2.16
O. P. Oil Meal	77.7	2.00	2.57
Beef Scrap	96.3	3.00	3.12

It is evident from the table that there is a wide variation in the cost of 100 pounds of total nutriment depending on the grain or feed. At the present prices, corn at \$1.60 per 100 pounds is the most economical feed to buy, whereas wheat at \$1.50 per bushel, or \$2.50 per 100 pounds is practically the most expensive. Thus the real value of a feed is not determined by its cost per 100 pounds, but by the cost per 100 pounds of total nutriment, or if one wishes to be still more accurate, by its cost per unit of producing value measured in energy units.

But we cannot feed all corn, and

expect to secure the best results as is suggested by the following table.

#### COMPOSITION OF POULTRY, EGGS AND CORN (PER CENT).

	Water	Ash	Protein	Fat	Carbo-hydrates
Hen's body	55.8	3.8	21.6	17.0	—
The Egg	65.7	12.2	11.4	8.9	—
Corn	10.6	1.5	10.3	5.0	72.6

From this table it is readily seen that corn contains too small a percentage of protein and of ash to supply the body needs of the hen and to produce eggs, or if fed in large quantities to supply the protein, it would represent a waste of carbo-hydrates. This illustrates the necessity for a variety of feeds including some of the protein concentrates such as beef scrap, wheat middlings, oil meal and perhaps gluten feed or the like.

To illustrate how the economic consideration of feeds may enter into the making up of a ration let us consider the Cornell ration for laying hens.

Standard	Possible Modification
Corn..... 60 lbs.	Corn..... 60 lbs.
Wheat..... 60 "	Barley..... 30 "
Oats..... 30 "	Oats..... 30 "
Buckwheat..... 30 "	Buckwheat..... 30 "
Corn Meal..... 60 "	Corn Meal..... 60 "
Wheat Midds..... 60 "	Wheat Midds..... 80 "
Wheat Bran..... 30 "	Wheat Bran..... 40 "
O. P. Oil Meal..... 10 "	O. P. Oil Meal..... 10 "
Alfalfa Meal..... 10 "	Alfalfa Meal..... 10 "
Beef Scrap..... 50 "	Beef Scrap..... 50 "
Salt..... ½ "	Salt..... ½ "

With the suggested change the nutritive ratio has not been materially changed and we have eliminated the present expensive factor, wheat, and by adding barley and increasing slightly the amount of wheat middlings and wheat bran the physical condition of the ration has not been impaired while the cost has been lowered a trifle over 15 cents per 100 pounds.

Other changes might be made according to the availability and price of feeds. In the northern part of the State where peas are abundant and relatively cheap they make a good substitute; beef scrap purchased in larger quantities at cheaper rates may be increased; fish scrap may be sub-

stituted; and other variations made as local conditions warrant, always bearing in mind the necessity for a good variety of foods which have a sufficient amount of protein and ash, and a relatively small amount of fiber. With

these essentials supplied, it is worth while to consider the feeds very largely from an economical standpoint, and from time to time make such changes as the local price and availability of feeds seems to demand.

## METHOD OF SELECTING THE HIGH PRODUCING HENS

BY O. B. KENT, '13

Instructor, Poultry Department, New York State College of Agriculture at Cornell University

(Note. There are four main ways to determine the high producers—by the time of molting, color of shanks, texture of comb and color of ear lobes.)

**P**OULTRYMEN generally are more interested in being able to tell the heavy laying than in any other problem that confronts them. Several "systems" of "Picking out the laying hens" have been advertised but as yet, so far as we know, none have been advanced which will work consistently. The following is probably one of the easiest methods of picking out birds which show that they have laid well. No attempt is made to tell production by body conformation.

In applying the following method of picking out the heavy layers it must be borne in mind that in order to lay well birds must have good vigor. Almost any normal sign of high production may be due to a lack of vitality.

The characters to be used in this study of egg production are four in number: 1) time of molting, 2) color of shank, 3) texture of comb, 4) color of ear lobes.

### TIME OF MOLTING.

An experiment\* carried on in 1907 and 1908 at this station drew attention to the fact that early molters are poor

producers and late molters are high producers.\*\* Another series of observations were made approximately October 1st, 1914. It was found that molting is very nearly as good a test of production as color of shank. This may be readily explained on the basis that those hens that molt late have a longer period in which to lay and hence lay more eggs. The distinction should be made that heavy producers molt late and not that the mere fact of late molting makes high producers. Late molting is simply the accompaniment of late laying. This holds true of the second and third year production as well as the third.

The question arises will those hens that molt late be handicapped by a lack of feathers and suffer from the cold and as a result not lay until spring? Almost the reverse seems to be true. Those hens that molt late have begun to lay as early as the early molters. Those that were in full molt October 1st, 1914, have begun to lay slightly ahead of either the early molters or late molters. However, with as early a winter as experienced this year in Ithaca the November and December production was extremely small. Those hens

\*See bulletin 258 for further information on molting.

\*\*We have recently found out that some contributors to *Farm Poultry* observed the late molting and high production phenomena as early as 1902.

that molted late molted much more rapidly than those that molted early and hence lost less time.

#### COLOR OF SHANKS.

In the summer and fall of 1911 a method of determining the production of fowls by the color of the shanks was obtained. It was found that in the yellow skin breeds, the paleness of shank was a very reliable indication if taken in the fall at the end of the first year. Approximately October 1st,



Hen No. 61 in heavy molt, November 28, 1906. Observe the old primary and secondary feathers unshed, while the new body and tail feathers are partially developed and the neck feathers well grown. Record 213 eggs in 261 days, Jan. 24-Oct. 12, 1906.

1914, another series of observations were made to test out the accuracy of the first observation. The data secured in every way check up the original work. The data secured this fall shows conclusively that any bird that has shanks as dark as a light lemon color after laying for a year has been a poor producer. All of the high producers and some of the low vitality low producers have pale shanks, but

any bird with yellow shanks after a year of laying whether it be the first, second or third year of egg production has been a poor producer for that year. If a bird starts with pale shanks the shanks will not grow darker and nothing can be told of the egg production from the shanks alone.

#### TEXTURE OF COMB.

In addition to the observations on shanks and molting a series of observations were made with reference to the texture of the comb. It was found that those birds which had soft and pliable combs when these observations were made, about October 1st, 1914, in general were better producers than those with hard or dried up combs. This may be explained on the basis that as a bird molts its comb tends to shrink and become hard. These birds that are in good condition or are laying have pliable combs. The others do not.

From the three characters, the color of shank, time of molting and texture of comb, a correlation table was constructed to show their relation to egg production. In order to do this it was necessary to grade each factor numerically. All birds which have failed to molt or were just beginning to molt were put in grade 1. A bird that had completed its molt was put in grade 5. Intermediate degrees of molting were numbered 2, 3 and 4. The color of the shanks was graded in the same manner. Those birds having practically no yellow color present in their shanks were put in grade 1. Those having golden yellow shanks were put in grade 5. The intermediate degrees of yellow were numbered 2, 3 and 4. The texture of the comb was graded in exactly the same way. Grade 1 being a soft and pliable comb and grade 5 being a hard and stiff comb. Number 2, 3 and 4 were the intermediate grades. The accompanying table No. 1 shows how the factors were graded and gives an idea how reliable each of the three methods are.

The following correlation table shows how closely the factors agree. The coefficient of correlation is .605 + .021 showing that there is a very strong correlation between a combination of the three factors and egg production. A study of the correlation table shows that very few individuals which scored 6 or less failed to lay more than 120 eggs and that there are comparatively few individuals which scored more than 9 that laid over 100 eggs. This shows that it is readily possible to go through a flock of

TABLE I

Time of Molt, Color of Shank and Texture of Comb as Indications of Egg Production.

THE FIRST TEN HENS OF PEN 27.

Bird No.	Time of Molt	Color of shanks	Texture of Comb	Total	Egg Production
3154	1	1	1	3	173
3157	1	1	1	3	224
3158	3	2	5	10	92
3159	1	1	1	3	177
3162	3	1	5	9	119
3163	1	2	1	4	187
3164	2	1	3	6	155
3175	1	1	1	3	257
3176	4	2	2	8	121
3191	4	2	3	9	106

White Leghorn hens about October 1st and tell very closely the hens that have been high producers and those that have been poor producers. A similar correlation table for the second year gives practically the same results.

#### COLOR OF EAR LOBE.

Very recently it was discovered at the Connecticut Agricultural Experiment Station, Storrs, Conn. and reported in an address before a meeting of the American Association for the Advancement of Science, by Dr. Blakeslee of that Station, that those birds that normally have a considerable amount of yellow pigment in their ear lobes before they begin to lay will lay this yellow color out. For instance, a White Leghorn pullet, before it lays its first egg, will have a bright yellow ear lobe, but after laying its ear lobes will become white. There are some strains of show birds

which have been bred for white ear lobes that will apparently not bleach out when the bird lays. However, such strains normally have light colored shanks. After a bird has stopped laying the yellow color will come back into the ear lobes. With White Leghorns, which in most utility strains have bright yellow shanks and hence considerable yellow in the ear lobe, we can tell very closely when a bird begins to lay by simply looking at the ear lobes. It has been shown by this Experiment Station and others that those birds that begin to lay early, if they were hatched at the same time, will normally lay the most eggs in the course of a year since they have a longer time in which to lay. However, the bird should not begin to lay until cool weather, that is, generally some time in October or November. If they begin laying in July or August they will usually molt before winter. With the strain of birds that we have at this Station a White Leghorn pullet that does not begin to lay before she is eight months old can generally be discarded as a poor producer. By means of the ear lobes it is a comparatively easy matter to go through a flock of utility White

TIME OF MOLT,	COLOR OF SHANKS,	TEXTURE OF COMB,	EGG PRODUCTION												
			241-260	221-240	201-220	181-200	161-180	141-160	121-140	101-120	81-100	61-80	41-60	21-40	1-20
3	1	1	3	1	9	5	6	2	1						29
4					5	5	12	5	1						28
5					2	4	3	3	2						14
6					1	3	3	1	6					1	15
7							4	8	13	7	7	3	2		44
8							2	12	12	18	8	9	5		66
9								5	9	17	19	17	10	6	83
10									3	9	19	14	19	13	79
11									3	4	11	14	8	7	52
12										1	5	6	1	2	17
13												5	1		6
			1	1	3	9	32	58	71	90	67	55	36	6	4421



Leghorn pullets eight months after they are hatched and pick out those that have not laid. It must be borne in mind, however, that the ear lobe test simply indicates whether the bird is laying or not and does not necessarily indicate that a bird will lay heavily throughout the year. Some experiments have been carried on at this Station to test the reliability of this method of telling whether a bird is laying in comparison with some of the other methods. We have found it to be very much more reliable than the pelvic arch or comb test. In fact, we find it practically absolutely reliable as showing whether a bird has been laying heavily recently or not.

The practical application of this work is (1) start in the fall of the fourth year with birds having bright

yellow shanks, (2) when the birds are about seven to eight months old, if they were hatched in April, May or early in June, go through the flock and cull out all of those birds that have yellow color in the ear lobe. In other words, cull out those that had not begun to lay, (3) beginning about July 1st, go through the flock once or twice a month and cull out those hens that have yellow shanks, have begun to molt and have dried up combs. Keep on culling till the flock is reduced to the number it is desired to winter. By culling early the poorest producers will be taken out first and their feed bill will be saved. The later the birds are culled the higher will be their average egg production. This can be done with yearling as well as with pullets with the same result.

## PIGEONS AND SQUABS

BY THOMAS WRIGHT

Yama Farms, Napanoch, N. Y.



FOUNTAIN STOCK AT YAMA FARMS

THE adage "'tis remuneration that makes labor sweet" can not be better verified than in results obtained by breeding squabs, when a perfect understanding is reached be-

tween the breeder and the requirements for his success.

The means of education to this end are limited inasmuch as our State Colleges and our National Board of Agri-

culture have seemed to disregard the valuable service that the pigeon is capable of rendering to the world of commerce. In view of this fact the enterprise and philanthropic spirit of the proprietor of the Yama Farms has offered to the aspirant of squab fame

one of the greatest evils in any inexperienced breeder. Securing the fountain stock is often the text of either success or failure. We must not be lured into fascination by inducements offered for our money except by buying vigorous healthy stock



THE CORRECT WAY TO HOLD A PIGEON WITHOUT MOLESTATION

a little booklet of purely helpful suggestions, no advertising medium, but a companionable little informant, which may be had for the asking.

The business of breeding squab, though a very companionable adjunct to breeding poultry, can not be compared to it, because of the fact that pigeons are monogamous while poultry are polygamous. Breeding fowls seems mechanical; owing to a certain amount of monotony in the daily routine. Breeding pigeons possesses a suspicion of sentiment because the relationship existing between a pair of established breeding pigeons is of a nature well worthy of comparison to the human family.

But while the industry is full of sentiment it is also full of profit in purse, as well as mind food. The principal obstacles which confront the amateur are necessarily the result of ignorance and lack of experience. Too close relationship in breeding is

at the start and, right here, I would advise any one to buy where the stock has been bred and where all the virtues and values are well known and were originated by the breeder and seller. Too much care in this direction can not be exercised by the contemplating beginner. Regard your attitude in the light of any commercial relationship to value received and do not run away with the effervescence of illuminated ink displays. Remember the characteristics, good or bad, are, by the process of breeding, transmitted to succeeding families and generations and are often perpetuated to our sorrow.

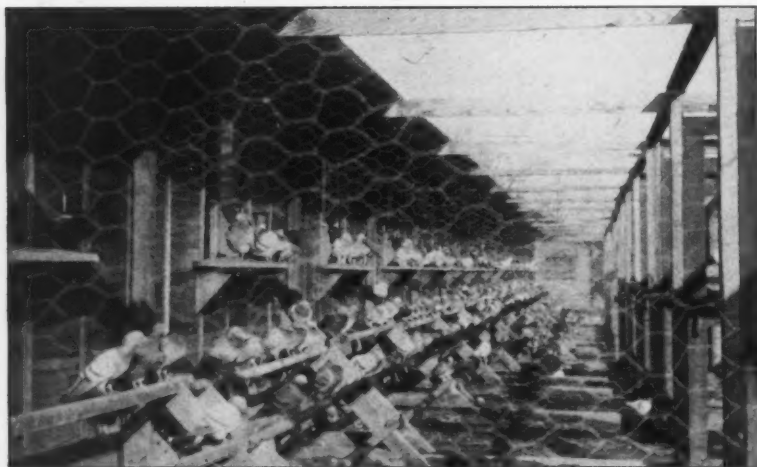
Beautiful and diversified as our domestic pigeons are, left to themselves, with no power of discrimination in their relationship one to the other, they soon revert to the original source "The Blue Rock," with its black bars across the wing; the slatey color; the iridescent neck and the

black tip across the end of the tail and, in the process of breeding, no matter how careful we may be or how far removed by an infusion of other blood, symptoms of their wild variety will appear intermittently in a race. I am speaking now in connection with varieties most commonly used for breeding marketable squab, and not on the fancy or ornamentable varieties, as in the latter we find nothing useful in our purpose.

The breast of the squab being the

capable of filling all requirements. I am not going to disparage, in any way, its value as far as it goes. It is very prolific, hardy and matures early, but to gratify the demand for a squab that will *average* one pound we can not depend upon them for this result. Hence, we must cross upon a larger variety without deteriorating and of its virtues, or breed a larger sort.

The Carneaux is especially prolific and breeds a larger and heavier squab than the Homer. The Runt breeds a



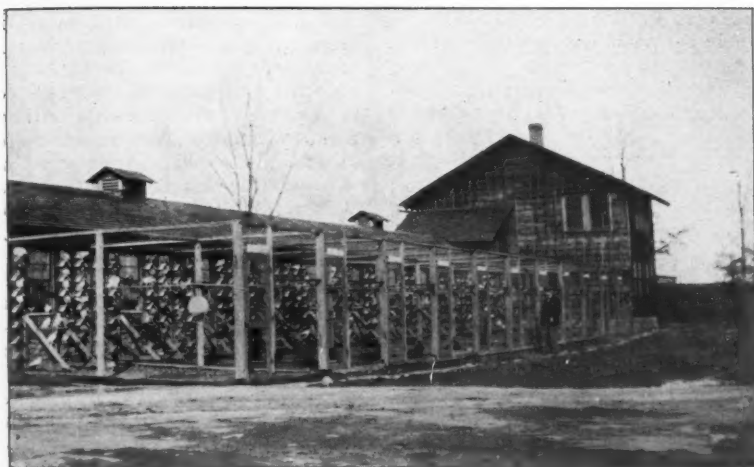
PIGEONS' PARADISE—PLENTY TO EAT AND DRINK, LOTS OF SUNSHINE AND CLEAN QUARTERS

most valuable part of the body as a receptacle for meat, we must have in the mind's eye, a sharp lookout as to breeding birds together, which are capable of improving this object. We shall not ignore the fact that there is a possibility of beauty of outline, type, symmetry and color, even while mating for commercial needs; but this should be the work of the experienced and not be attempted by the amateur for so often the fascination for the eye sacrifices the properties so essential for the normal stomach and appetite.

The Homer is advocated quite extensively as an ideal squab bird and

still larger squab and if subjected to selection and careful breeding, after such has been judiciously exercised, is one of our most valuable breeders; involving as it does, all of the natural qualifications.

I was, one day, discussing the merits of various crosses, when my companion exclaimed "I have an idea the most valuable bird for squab purposes might be bred from the Runt and Carneaux." I fully agreed with his opinion and upon his invitation made this cross. By using male Carneaux upon female Runts this cross was made. One of the results of this cross may be seen by the illustration

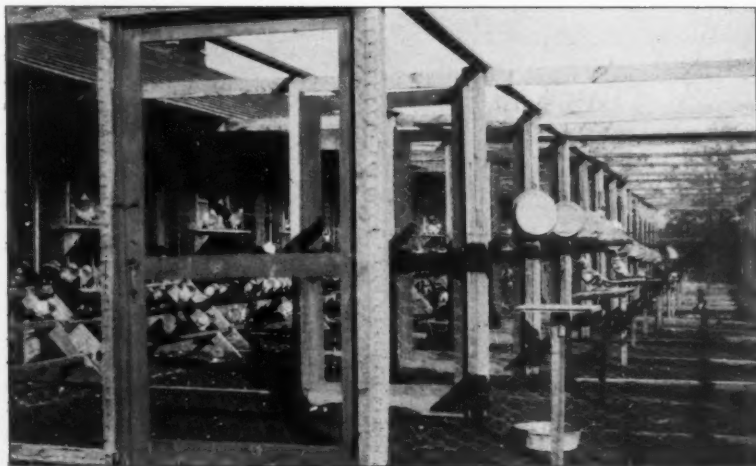


HOUSE NO. 1 ACCOMMODATES 450 PAIRS OF BREEDERS

of one of these crosses in my hand. In front of the pen this process of crossing is in operation. To judiciously cross any two varieties, with proper proportions, should improve our purpose. To allow two varieties access to each other promiscuously produces a mongrel. The pigeons' responsive nature to improve principals of breeding is remarkably pronounced

and very gratifying when compared with many of the lower orders of creatures we may experiment upon and as vigor is, I consider, the most essential quality in the breeding of pigeons, by judicious crossing we intensify this quality in every application.

The interesting feature of this cross of Runt and Carneaux is *predeter-*



EVERYTHING IS KEPT SPOTLESSLY CLEAN

mining the color of the offspring. The idea being to produce a red bird with largely the marketable quality of the Carneau and the size of the Runt. Departures from this appear occasionally, but a very large proportion



MR. WRIGHT HOLDING RUNT-CARNEAUX  
CROSSES

respond to the methods used, and are about the most satisfactory product that I have yet seen.

I should like very much to go into detail upon *specifications* pertaining to the above subject, but space and time will not admit. There are two special reasons why squab breeding should receive active support. One is, as our game birds are so protected by game laws, cold storage long ago became exhausted, and the squab is called upon to fill the vacancy caused by this and *no output* of good squabs will ever glut the market. Another

reason is this, that the pigeon successfully plays the part of incubator, brooder, feeder and saves all expense of these requirements which must be supplied in extensive poultry breeding. Hence, the necessary outlay of cash, to establish a business which returns a good profit, when compared with poultry, is far less, while the cash returns come to the investor much earlier than from the poultry breeding.

It is not my purpose to, in any way, cast reflections or disrespect upon the breeding of poultry, but there is a desire to combine the two industries and, at times, the amateur asks himself this question "which of the two shall I engage in?" If the inquirer is a natural lover of the feathered race his interests and perseverance will, I think, more readily respond to in breeding *squabs* than breeding *poultry*, if an equal amount of knowledge is bestowed on the former as upon the latter, while the pleasure of the details of breeding the squab, to the student of *nature*, is a never ending larder of delicacies to the active mind.

This illustration, House No. 1 Yama Farms Squabbery, contains breeding apartments for about 450 pairs, also an office, a killing room with cement floor—designed especially with an eye to perfect sanitation—a perfectly equipped grain room—with bins all around it—and upstairs there is a sleeping room for an attendant, also a large lecture room and reading room and all are heated with steam heat.

A system of ventilation is here shown in middle of the pen, also serving as a roosting place at night. The droppings fall to the floor and all odors escapes through the perforated tube.

The roof of these houses projects about 18" over the sides of the building. The front wall on the outside, you will observe is provided with perches where birds can indulge their vacant period with sunshine or, if a shower overtakes them and they desire to get out of it, they can roost on



these perches, which afford many hours of rest and pleasurable display without the possibility of being annoyed by disagreeable companions. The entire house, interior and exterior, is the only one I have seen, of the same degree of perfection. We have other houses strongly resembling it in detail.

I most sincerely regret that I can not go more extensively into detail here, upon the various topics *which*

*are essential to successful squab breeding.* I shall, however, be very glad to aid in any way I can, the amateur, who may read this article, if he will consult me. Squab breeding is, without exception, the most interesting branch of agricultural life. The many unoccupied buildings upon nearly every farm, which a small outlay of cash would make suitable can be used for breeding squabs for market and a good profit realized.

## MY EXPERIENCE WITH POULTRY

BY CAROLYN J. BOTT, W.P., '11

(Note. Here is an excellent example of "Back-to-the-Landers" making good in the Poultry Business,)

"Turkey, duck, rooster, hen  
We'er the best that's ever been  
We're right here, just fifty-seven  
Cornell Poultry, nineteen-eleven."

SOME few years ago we came into possession of a country place on the outskirts of a fairly large city. With this home we became owners also of a flock of white Wyandotte hens. These were taken care of for a year or more by our hired man with the result that we received a few eggs in the spring, but none in the summer, fall or winter.

I resented this attitude on the part of the hens and decided to look into the matter. We sent to the Maine Experiment Station for their bulletin to see if we could make the hens behave differently. We knew absolutely nothing about hens, but followed their instructions to the letter, and just three weeks after that we found our first eggs, notwithstanding that this was in December. This convinced us that hens did lay eggs, a fact previous to that time it was difficult for us to believe. They laid steadily and our interest increased.

It so happened that we decided to be "Back to the Landers." We had a large dairy farm of 400 acres that was being run on shares, situated in

Shelburne, Vermont, on the beautiful shores of Lake Champlain.

We attempted for three years after our arrival to run the dairy part of the farm ourselves, but with the incompetent help and the low price of milk we found it anything but a remunerative proposition; it was also a source of great annoyance. So in desperation we have again rented it. Fortunately it is so situated that the dairy part can be cut off and not interfere with our poultry business or our residence and grounds. Our experience has been that with the price of labor, and the poor work given in return for high wages, nothing can be made in running a dairy situated as far from a good market as we are, and we feel that the only excuse for our dairy farm is to furnish skimmed milk for our poultry.

In the winter of 1910, I went to Cornell and took the Poultry Course. On the first day of the class, I remember being asked what breed I wished to have for pen practice, and I loyally stuck to Wyandottes; but before I had finished those six weeks of arduous labor and had seen other students carrying in dozens of eggs, while I was getting only a few, my

loyalty received a bump, and before the course was over I was a strong convert to Leghorns for the commercial plant.

We started in April with two 460 egg incubators and three Cornell gasoline brooders. We did not hatch a large percentage of our eggs that first year, although our brooding record was good. In the fall we built a three-pen, long house, each pen 20 x 20 feet with shed roof, cement floors, and muslin curtains after the approved Cornell plan. Board partitions three feet from the floor with muslin above, and self feeding hoppers between each pen. We put into our new house in the fall of 1911 only 270 pullets.

Lake Champlain is a wonderful country for beauty, but hardly an ideal place to start the poultry business with the thermometer often falling to 30 degrees below zero. Two hundred and seventy pullets meant only about ninety birds in a pen, and one night they froze their combs. Since then we have put muslin curtains on wires in front of the roosts, and when the thermometer registers zero at 10:30 at night, the man of the house gets his lantern, goes out and draws the curtains making it cozy for the ladies, who have done such good work for us. Of course with the zero weather we got no eggs for some time, but at the end of the year we cleared \$1.68 a bird.

When I give our profits, I wish to make the point that a regular set of books is kept and everything charged against the birds, feed, cartons, cases, interest on the investment, and all expenses of every kind. We do not make any charge for labor against our profits, as we consider this a one man business, and the profits are supposed to include the care and labor of the owners. In fact, the labor consumes a great deal less than one man's time, except at the brooding season. If labor is to be charged against the profits, they, of course, would be correspondingly reduced.

The following fall we built an ad-

dition of two pens on to our original three pen house, making a house of five pens, each pen 20 x 20, and feed room. That year we started in the fall with 515 pullets and 200 hens and made a net profit of \$2.18 a bird during the year.

The following fall we added two more pens to our long house making seven pens 20 x 20 feet each, and also enlarged our feed room making that room 18 x 20 feet, enabling us to buy our feed in large quantities at a considerable saving. We put into this house 600 pullets, and 340 yearlings and 200 year-olds, the latter for breeders. We were fortunate enough to sell a considerable number of eggs for hatching, but our principal source of income was from market eggs. We cleared \$3.05 net per bird that year, and had an average production of 170 eggs from our pullets kept in one large flock.

Our brooding records for the past three years have been 97½%, 95% and 96% respectively. That is, we raised to eight weeks old (when they were put on range) the above percentage of chicks put into the brooder. We never put into a brooder a chick that shows the slightest weakness or deformity, and the moment one develops droopy wings or low vitality, that chick is killed, and charged up against the brooding record of that house. This is done systematically, and we know our records are correct and not padded.

I personally take entire charge of the incubating and brooding. No one feeds my chicks but myself, and they are fed as regularly as an infant. After the chicks have reached eight weeks of age, they go in range where they lead a free, untrammelled life with everything that a self-respecting chick needs to make it happy.

I know my percentage in brooding would have been higher this year had I not been compelled through illness to leave my last batch of chicks when about three weeks old. These little fellows were left for our man to take

*Continued on page 510.*

## FACTS ON SUCCESSFUL POULTRY KEEPING

BY EDWARD S. PARSONS, W.P., 1911-12

Manager of the Poultry Department of Broad Brook Farm, Bedford Hills, N. Y.

**T**HE poultry department of Broad Brook Farm, Bedford Hills, New York, of which I am in charge, consists of about 15 acres of land all of which is set out to an intensive apple orchard.

While the chicken department and apple orchard use the same land they are absolutely independent departments. Each keeps its own records and accounts of all business.

practical and scientific knowledge of poultry.

All revenue comes from the sale of sterile fancy white eggs, eggs for hatching, line bred cockerels, cocks and hens as breeders, fancy broilers, fancy light roosters, custom hatching and day old chicks.

The stock, Single Comb White Leghorns, I have line bred for constitutional vigor, late molting, size and



The cockerels which are being fattened for fancy broilers live in small colony houses. The out-of-doors feed hopper, shown in the left side of the picture, is a very convenient asset.

The soil is light and gravelly with a sandy sub-soil, affording excellent drainage and making it possible to keep a very large number of chickens per acre.

This combination of chickens, fruit and light soil is ideal. The chicken manure gives strength and rapid growth to the trees, and in most cases, brings them into bearing younger. The orchard in turn gives shade in summer and helps to break the wind in winter.

The poultry department on Broad Brook Farm is run to pay and not as a hobby or plaything. Success in poultry depends as much on sound business principles and ability, as on

egg production using only large cockerels of known parentage. Now that I have given a rough outline of the plant I will begin with the starting of the incubator and give the working system from the time the chicks are born until they are sold.

All hatching eggs are dipped in a solution of bichloride of mercury and let dry before going into incubator. The first eggs go in about February 7, the last about the middle of April. I do not want chicks hatched after May 10th. The floor of the incubator cellar is always kept wet, and on the 18th day all eggs are sprinkled with warm water. As soon as the chicks are dry in the incubator (that is 24

hours before chicks are usually removed) they are taken out and each chick given a pen dropper full of commercial starter, buttermilk, or clean sour skimmed milk, down its throat filling the crop. (I prefer commercial starter.)

I have proved by the last two years' results, that my method of filling the chick's crop as soon as dry with starter will overcome Bacillary White Diarrhea and make it possible to raise strong vigorous chicks from once infected stock.

After the chickens get their dose of starter they are put in the brooders, fed and cared for as follows:

As soon as the sex can be told (4 to 5 weeks) the chicks are gone over, all toe-marked cockerels left with the pullets, the remaining cockerels put in another pen to be fattened and rushed to market. Last year some cockerels weighed  $1\frac{1}{2}$  lbs. at 7 weeks old.

No food is given until chicks are 36 hours old. After chicks learn to drink, sour skimmed milk is always before them in open pans. Fresh water with permanganate of potassium in it, is always before chicks, also oyster shell and grit.

Beginning with the first feeding, chicks get all the green food they will eat; I use mangel beets stuck on nails and find picking at the beets keeps the chicks busy and out of mischief.

*First feed to fifth day.* Mixture 1—fed dry, three times a day, 6 A. M., 11.30 A. M., 5 P. M. Mixture 1-2—mixed half and half; fed dry twice a day, 9 A. M., 3 P. M. All feed given in shallow pans, left before chicks only ten minutes at each feeding. A little of mixture 1 is scattered in litter to make chicks learn to scratch. On second day mix mixture 3 with 1 for 6 A. M., 11.30 A. M., 5 P. M. feeding.

*Fifth day to second week.* Mixture 1-3, mixed, fed in litter three times a day, 6 A. M., 11.30 A. M., 5 P. M., all they will eat up clean. After few days drop out mixture 1. Mixture 2, fed dry in low troughs with wire

screens, twice a day. Half hour in morning 9.30 to 10 A. M. One hour in afternoon, 3 to 4 P. M.

*Second to fourth week.* Mixture 3, the same. Mixture 2, before chicks one hour in morning, all afternoon.

*Fourth to sixth week.* Mixture 3 the same. Mixture 2 always before chicks.

*Sixth week to maturity.* Chicks on range. When chicks are first taken out mixtures 3-5 mixed are fed in colony houses or temporary yard. Mixture 4 in hopper in house. As soon as chicks are given free range, mixture 4-5 is fed in large outside hoppers. After chicks are 3 months old, mixture 6 is used. All cockerels to be fattened are kept in small flocks in pens. The fattening mash is always before chicks in hoppers, and fed wet with some skimmed milk at 1 P. M. At night they are given all the corn they will eat up clean.

#### CHICK RATION.

<i>Mixture 1.</i>	<i>Mixture 2.</i>
100 Pin head oatmeal	<i>N.R. 1:2.21</i>
15 Fine sifted meat	100 Wheat middlings
scrap	100 " bran
15 Fine oystershell	100 Corn meal
15 " grit	20 Alfalfa meal
100	100 Fine sifted meat
145	— scrap
	420
<i>Mixture 3.</i>	<i>Mixture 4.</i>
<i>N.R. 1:8.25</i>	<i>N.R. 1:2.21</i>
100 Fine cracked	50 Wheat middlings
corn	40 " bran
100 Fine-Cracked	30 Corn meal
— wheat	20 Gluten feed
200	40 Meat scrap
	180
<i>Mixture 5.</i>	<i>Mixture 6.</i>
<i>N.R. 1:8.68</i>	<i>N.R. 1:8.30</i>
200 Cracked corn	200 Cracked corn
100 Whole Wheat	100 Wheat
—	50 Oats
300	—
	350
	<i>Fattening Mash</i>
	<i>N.R. 1:4.43.</i>
	300 Corn meal
	150 Wheat middlings
	50 Fine meat scrap.
	500

All laying and breeding stock are



TOP.—Cornell colony house,\* surrounded by orchard, which is planted with rye in which the chicks can run. MIDDLE.—Pullets and marked cockerels. This picture was taken in June. Note size of pullets. BOTTOM.—Long house, 35x16, holding 2100 chickens. Range is seeded and harrowed twice a year.





The poultry plant is located in the orchard here furnishing ideal conditions for the hens.



housed in two houses, one 20 x 80, capacity 500-550, the other 16 x 350 with feed house in center, killing and picking room underneath, extra store-room and living room above, at west end, manure house with drive underneath and trap door. An overhead trolley runs through east pen, around feed room with extra switch through west pen to manure house, a stove and non-freezing hydrant are at one side of feed room. By using a water barrel, feed and manure cars, labor is reduced to the minimum. 900 to 1075 chickens are kept in each side running together with excellent re-

sults. Houses of this type have many advantages over small houses, they are cheaper to build per hen capacity, are much warmer in winter, cooler in summer when equipped with large back ventilators, everything being compact and under one roof, there is no lost time of labor.

The last of August, pullets are brought in from the range and put in one side of long house, and small house. Marked cockerels to be kept as breeders are put in other side of long house with hens.

All laying stock are given ration 1.



This house is 20 x 80 with room for 500-550 hens. Note how well lighted the house is.



*Ration 1.*

60 Wheat Middlings	} <i>N. R.</i>	} <i>N. R.</i>
50 Corn Meal		
40 Wheat Bran	} 1:2.17	} 1:469
10 Oil Meal		
50 Meat Scrap	} Mash	} <i>Ration</i>
240 Cr. Corn		
120 Wheat	} <i>N. R.</i>	}
60 Oats		
	} 1:8.30	
630		

For the breeding stock I use a wide ration because breeders cannot be forced by heavy feeding of protein and other stimulating foods and be expected to lay eggs that hatch and produce strong chicks. Forced feeding does not affect fertility, but it most assuredly does affect the hatching power of an egg, the strength of the germ and the chick.

From November 1st to May 1st, all breeders get ration 2.

*Ration 2.*

60 Wheat Middlings	} <i>N. R.</i>	} <i>N. R.</i>
70 Wheat Bran		
60 Corn Meal	} 1:3.52	} 1:6
20 Meat Scrap		
240 Cr. Corn	} <i>N. R.</i>	} <i>Ration</i>
120 Wheat		
60 Oats	} 1:8.30	} <i>Grain</i>
630		

With the exception of the mash, the breeders and laying stock are treated alike. Mash is always before the birds in hoppers which are filled every Monday morning. Each account

is kept of pounds consumed by each pen or house. By knowing the amount of mash consumed, it is easy to feed the grain at the proportion of 2 pounds grain (or little less) to 1 pound mash. Dropping boards are cleaned every day except Sunday. Early every morning all chickens get fresh water with permanganate of potassium in it, and again at 1 p.m., right after watering, all chickens get a light grain feed and in winter again at 11:30. This is to keep them busy and exercising.

At 1 p.m. green food is given. In winter mangel beets, using 8 pounds to 100 chickens, spring, until a killing frost, green cut alfalfa, oats and peas, are fed on the litter, all they will eat. At 4 p.m. in winter, 5 p.m. in summer, the heavy grain feed is given.

Clear dry days all chickens are let out just before noon. I have found the egg production is higher when hens are not out all day. After December 1st they are not let out until the ground has dried up in spring.

All houses are disinfected with cresol every other week. Nests and roosts are scraped and painted with kerosene about once a month. Tobacco stems are used in nests.

*Continued on page 512.*

## FARMERS' WEEK IMPRESSIONS AND COMMENTS

BY BRISTOW ADAMS

**A**FTER having attended Farmers' Week gatherings in many parts of the country as widely separated as Louisiana, Virginia, and Wisconsin, one naturally has some preconceived notions as to Farmers' Week in New York. These notions were quite upset; experiences in other states gave no anticipatory idea of the numbers, interest, and perfection of organization to be found at Cornell.

Before the Week began it seemed that the plans were nebulous; there was a surprising lack of "fuss and feathers," as if those who had the matter in charge expected the events just to happen. On Monday, how-

ever, everything slipped into well-oiled grooves, and the exercises were under way with all the smoothness of a ship launching.

It is hard to understand how Ithaca took care of one-fourth more than its normal population; yet a somewhat careful inquiry failed to reveal any source of dissatisfaction. Throughout the week the cheery good nature of all of those who were in attendance, either as spectators or as performers, was worthy of comment; and even at the end of the week, when one might suppose that the strain would begin to tell in fatigue and in frayed nerves, the same pleasant feeling prevailed.

An ideal of helpfulness pervaded the whole place.

The big feature was the attendance, and the final figures showed a total of 3,877 actually registered as against 2,551 the year before and 2,409 in 1913. This marked increase was more noteworthy in comparison with the fact that in other Agricultural Colleges there was a decrease in Farmers' Week attendance, such decrease having been reported from Pennsylvania and other nearby states. Missouri and Ohio showed increases, and Missouri with 2,810 registration claimed the largest attendance ever recorded at any meeting of the sort in this country. Missouri held the record for less than a month, when New York came along and topped Missouri's crowd by 1,067.

A good many have sought to analyze the cause of this increase. Early estimates predicted a falling off, based upon unfavorable farming conditions during the past season, upon business depression, and upon reactions from the war. Several at the College said that they would not have been surprised if the registration had shown a falling off of approximately one-third. When it showed an increase of that proportion those who were interested in statistics immediately set out to seek the cause. Various explanations of the increase have been advanced. First, there was the prestige and the popularity of Dean Galloway, who had recently come to the college after having achieved prominence in national agricultural circles as Assistant Secretary of the U. S. Department of Agriculture. Professor Tuck, head of the extension department, which had the Week in charge, said he thought there was an additional reason for the increase in the cooperation of the rural and agricultural press which printed a great deal of information about Farmers' Week and its activities. The first news story sent out by the College was printed in no less than 193 papers, with a total actual circulation of 919,800. In addition to that item, the College sent out thirteen other

news stories, each one bearing on Farmers' Week, but treating of some specific feature, such as the vegetable growers' association, potato show, home garden day, drainage convention, good seed conference, a chance to learn about poultry, a conference of farm bureau workers, country church conference, demonstrations in dairy work, exhibit of farm animals, meeting of floral clubs, home economic conference, and a gathering of fruit growers. Each one of these through the helpful cooperation of the press undoubtedly had its effect in adding to the attendance.

Dr. Andrew D. White, first president of Cornell University, was another who was impressed by the attendance, and sent the following message, which was read to those who gathered to hear the Eastman Stage orations:

"I have looked over the program of subjects with particular interest and appreciate the value of the exercises. It pleases me to know that the state is doing all this splendid work for its agriculture and its farmers. The attendance is a source of great satisfaction to me, particularly in the fact that people have come so far and that numbers of young people came today. As I look out of my windows I survey the College of Agriculture, and I am filled with satisfaction that this great work is under way."

Of the week itself there is little that should be singled out as pre-eminent. On every side were comments of high praise for those who had arranged the program and who took part in carrying it out. There was no friction and no accident to mar a perfect week.

The student activities are worth special mention, not only because they added to the enjoyment of those who attended, but also because they gave object lessons to the visitors of what the College might be supposed to stand for. Without doubt the best feature contributed by the students was the Eastman prize competition. It is no disparagement to the College staff, or to the visiting lecturers, to

say that the appeals for the ideal country home and for better recreation facilities, made by Mr. Hatch and Mr. Heinsoln probably had a more potent effect than most of the other talks given during the week. To mention only the winners, too, does a certain injustice to the others who had part in an even contest.

Another form of the students' activity, inconspicuous but of great value, was shown in their unselfish service as guides, guards, registration clerks, and announcement, arrangements, attendance, checking, rooming, ventilation and information bureau workers. Those who had occasion to note it, will not soon forget, for example, the devotion of one man who had charge of the trying task of the cloak room, and was on hand from early morning until the last entertainment was over at night.

One comment on the motion pictures shown in the Auditorium expressed very well the point of view of most of those who attended. These motion pictures were a new feature, and were introduced merely as a counter attraction during lunch hour, so that there would not be too much congestion at one time at the eating places. A few of the films shown were of the melodramatic type, and one earnest-souled farm woman re-

sented this in the remark that she "had come to be instructed and wanted all the instruction she could get." The next day the films showed the operation of milking machines, and also the work of the Federal Forest Service in administering the National Forests, especially as to their protection from fire. The films of this type seemed to give perfect satisfaction. As a result, it is planned that such films used another year will aim to combine education with entertainment. Next year, perhaps, it will be possible to show some of the "movies," taken at the College this year.

In spite of the larger attendance the crowds were handled with great ease. This was due no doubt to the availability of two new buildings, the Forestry Building and the new Soils Building, and to the efficient student help.

Having demonstrated that the College can readily handle approximately 4,000 people during Farmers' Week, the Extension Department is confidently looking forward to taking care of more than 5,000 next year, and the whole College is hoping that the farmers of the state will take advantage of the opportunity to see their institution and to get acquainted with it at first hand.

"DAFFODILS  
THAT COME BEFORE THE SWALLOW  
AND TAKE WINDS OF MARCH WITH  
BEAUTY."

—*Shakspeare*

# THE CORNELL COUNTRYMAN

FOUNDED 1903

INCORPORATED 1914

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## Practical Experience

Recently, there was received at the College, a letter telling of a graduate who had failed to make good as a farm manager, mainly because of his lack of practical farm experience. Such cases as this which are not altogether uncommon, are demonstrating the importance of the problem of farm experience which this college and which all agricultural colleges are now facing.

The time is coming, and is coming fast when the College will demand more farm experience before graduation. This is bound to happen. The reputation of the College is already suffering too much because so many of its graduates lack this experience. But how shall the students who have not had this practice, secure it?

Probably the best thing for them to do is to stay out a year and work on a well managed farm. It is far better to do this now than to wait until after graduation. They will find it much easier to secure a satisfactory position. If this is impossible the next best thing to do is to work on a farm during the summer. Now is the time to begin to look for a place on a farm.

Perhaps the question is raised as to how such positions can be obtained. If you are not personally acquainted with any farmers for whom you could work, seek the aid of the various departments in the College. If you want a position on a fruit farm, probably the Pomology Department will help you; on a poultry farm, the Poultry Department will assist. Put in an application in the Farm Practice office.

A few years ago a student, desiring a position for the summer, selected at random, from a list of the members of the New York State Fruit Growers' Association, twelve names in the locality in which he desired work. He wrote to those men and in this way secured a very desirable, enjoyable and profitable position.

Former students, here is an opportunity for you to help the College. If



during the coming summer, you can employ any students on your farm, by all means do so. Help some fellow Cornellian to be better fitted to start his life's work.

**Our Assemblies.** The pendulum is about to swing the other way. During the last few years there has been a gradual falling off in the popularity of our Assemblies, due to the great diversity of interests of the student body and to the enormous increase in numbers of the students. The old Ag. spirit of sociability and friendliness, which was so prevalent at our former Assemblies—a feeling that no one could afford to miss these meetings—threatened to become atrophied. But the time is at hand for this spirit to reassert itself. The pendulum had swung too far the other way and is now swinging back.

The Assembly of March 11th will mark the start of a new era. Recognizing a growing sentiment against the long lectures at these gatherings, the Assembly Committee is arranging for an entirely different program, one more especially designed to promote the social phase, but at the same time having an educational background. There will be three Assemblies this term, each one distinguished by some new feature. The program for Thursday, March 11th, includes a mock Congressional hearing, good music and a social "get-together" afterwards. The meeting will be held in Bailey Hall.

Faculty and Students,—now is our chance! Let us all put our shoulders to the wheel and push, and make the Assemblies something to be anticipated and looked forward to, long in advance. These gatherings furnish the best opportunity for faculty and students to meet each other on a common ground and get better acquainted. They are too valuable an institution to be lost. Let us start things with a rush by having everybody come out to the next Assembly.

Six of the leading Agricultural College Magazines sent Association of Ag- delegates to Chicago for a convention on February 12th agricultural College and 13th. The size of publication, the number of Magazines Founded issues and the advertising rates were standardized.

The CORNELL COUNTRYMAN leads the other magazines in the Association in size of circulation.

**A New Home for the Countryman** At last our dreams are realized! On February 23rd, the CORNELL COUNTRYMAN took possession of the Rural School House, formerly occupied by the Department of Rural Education. This change to larger, lighter and more convenient quarters will greatly aid the staff in their work. To have a building of their own has been the hope of many former boards and now that this is a reality, we issue a hearty invitation to all our friends to visit us and allow us to "show them around." The COUNTRYMAN staff feels very grateful to the College for this building and takes this opportunity to express their appreciation.

**Elections** The COUNTRYMAN wishes to announce the following elections to the staff: Miss R. H. Smith, '16, to succeed Miss H. M. Bergholtz, '15, as Women's Editor, and I. B. Dewson, '18 as a member of the Business Board. The staff desires to thank W. L. Dean, '18 for the excellent work he did in competition.



## CAMPUS NOTES

The Cornell University Poultry Association was organized in 1903. It is believed by the writer that it is the third oldest student organization of this College; the Agricultural Association and the Lazy Club having been formed prior to it. The Association was formed for the purpose, first, of stimulating and encouraging students' initiative in organization; second, of conducting an annual poultry show and educational exhibit; third, of holding meetings at regular intervals for the social and educational advantages that were to be gained.

The Association has been financed primarily by the sale of poultry books and magazines, and the collection of a small annual fee for membership. The total sale of books and magazines having amounted to over \$500 in a single year, as the result of the voluntary effort of those students interested in poultry. It is due to this that the Poultry Association now has over \$200 on which it is realizing 5% interest.

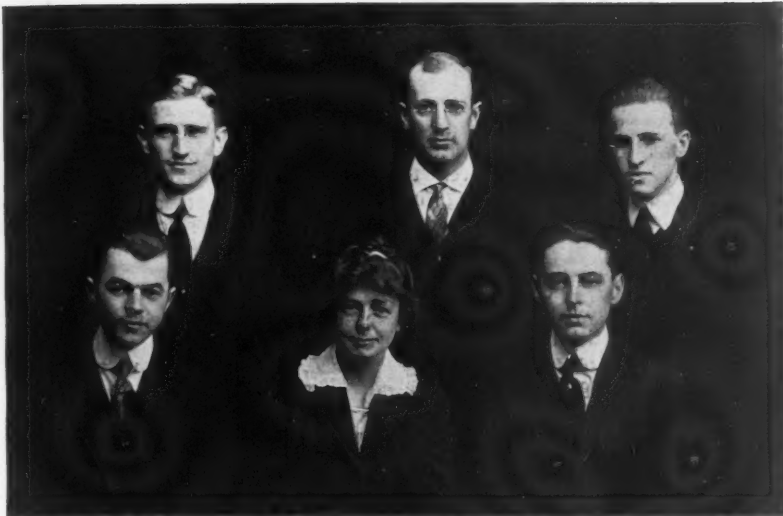
The association has from time to time offered special prizes to students for excellence in judging and scholarship, etc.

A total of six poultry shows have been conducted. In several instances the funds raised by the students were sufficient to fully finance the holding of the annual poultry show which included such expenses as catalogues, ribbons and general printing expenses. The first poultry show was held in 1904 in the old judging pavilion. An educational exhibit was staged there, and the total registered attendance

was 424. The second show was held in the Farm Mechanics Laboratory in the Agronomy Building, which is now the Library. The registered attendance was 511. The third and fourth shows were held in the Animal Husbandry judging pavilion. The next poultry show was held in the basement laboratory below the old Horticultural Library. The following year one of the green houses was used, and the next year, a show was staged in one of the head houses of the green house. The shows then had to be discontinued because of lack of space, and only a few birds have been shown since, merely as an educational exhibit. In 1914 the registered attendance of the educational exhibit was 708, many more not having signed their names.

### Findlay Drainage Prize.

The first prize for a report on drainage given before the Sixth Annual Convention of the New York State Drainage Association was won by A. B. Beaumont, Grad. His report concerned the "Principles of Underdrainage in Relation to Soil Improvement." The first prize consisted of \$25 in gold and a banner. The second prize of \$10 and a banner was received by W. C. Lyman, a short course student who delivered a report on "Reasons for Tile Drainage." R. E. Barringer, '16, and J. R. DuFloo, '17, received third and fourth places respectively. All of the reports were well presented and the competition for first place was very keen.



SPEAKERS ON THE EIGHTH ANNUAL EASTMAN STAGE

E. C. HEINSOHN, '15(2ND); T. B. CHARLES, '15; E. D. ROGERS, '16;  
B. W. KINNE, '16; MISS R. H. SMITH, '16; D. S. HATCH, '15 (WINNER)

#### Eastman Stage.

The Eighth Annual Eastman Debate Stage held February 12, was won by D. S. Hatch, '15, of Greenwich, N. Y., who delivered an address on "The Farm Home". E. C. Heinsohn of Mt. Vernon, N. Y., won second place on his presentation of the subject of "A Plea of Recreation in Our Rural Communities". In the absence of Dr. Andrew D. White, who was to preside at the stage, Director B. T. Galloway introduced the speakers. This stage is open only to undergraduates in the College of Agriculture who through competition are chosen to compete for a first prize of \$75 and a second one of \$25. These sums of money are available on account of the generosity of Mr. A. R. Eastman, a farmer and business man of Waterville, N. Y.

This stage was given before a large audience of persons in Bailey Hall most of whom were Farmers' Week guests. Hatch spoke in a plea for

the improvement of the farm home in equal ratio to the improvement which has been brought about through science in the business end of a farming enterprise. Heinsohn devoted his speech to the increasing necessity for play grounds and recreation pavilions even in the most thinly populated sections of the country. In addition to the prize winners, T. B. Charles, '15, spoke on "Is College Worth While;" Miss R. H. Smith, '16, on "The Country Girl;" B. W. Kinne, '16, on "The Lever Extension Act;" and E. D. Rogers, '16, on "Prohibition and the Farmer."

#### Changes in Roberts Hall.

The work of remodeling some of the rooms of the main building was interrupted by the influx of Farmers' Week visitors, but it has been resumed. The library has already been installed in its new quarters in the basement of the Agronomy Building and the Secretary's offices are now located where

the library formerly was. A part of the campus North of Roberts' Hall has been torn up for the purpose of connecting up the pipes from the new central heating system.

"The Kermis" given by the Agricultural students deserves to have a permanent place among the events of Farmers' Week. The entertainment given in Bailey Hall, Wednesday evening, Feb. 10, was the second of its kind, since the production last year met with such success as to insure a repetition of the event. A number of separate acts or stunts by different undergraduate associations made up the whole performance.

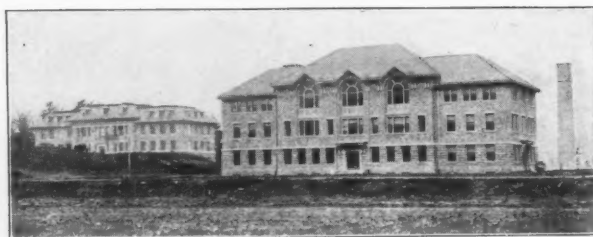
When the Agricultural Glee Club sang the opening number there were few vacant seats in the large auditorium. After the Glee Club had delighted the audience with its singing, the Sophomore Class presented a short play in one act entitled "A Regular Fix." The humorous situations afforded by the rather simple plot of this act were very amusing. Students in the Landscape Art Department took part in a Scenario, in which students and trimmers did stunts, during the interval between the Sophomore and Junior productions. A dance by two of the members of a theater party was

one of the features of the Junior act which represented a cabaret. The Forestry Club act was entitled "A Day's Work." A few of the duties which are parts of the ordinary day's work of a Forest Supervisor were humorously shown in this production. The Lazy Club gave a comic negro minstrel show. The Seniors presented "Mutt and Jeff at the Circus." These comic characters were shown at Farmers' Week, at the circus, and at home.

Photographic prints of the Kermis cast may be obtained at the H. C. Cable Art Store, 405 College Ave., Ithaca, N. Y. at 25 cents each.

#### The Weather Map.

The large weather map which has been placed near the main entrance to Roberts Hall is surely an object of interest to students. Before the college secured it, the map was used in Trenton. Each morning the weather indications on the map are changed according to messages received by the local station from stations scattered over the whole country. The map graphically gives information about high and low pressure areas, temperature, direction of winds, and state of the weather in different parts of the country.



## FORMER STUDENT NOTES

Former Students—Your classmates are anxious to know what you are doing. Write today, giving us some information about your work. Also if you can employ a student on your farm during next summer, please let us know, as there are many seeking such positions.

Among the various departmental clubs of the College of Agriculture, the Poultry Association is second oldest having been organized in 1908. Its object is primarily to bring together those students who are interested or specializing in Poultry Husbandry.

prietor of poultry farm at Bergen, N. Y.

1904. J. G. Halpin, '05, Professor of Poultry Husbandry, University of Wisconsin.

1905. L. B. Cable, President. Special. Proprietor and Manager of a large stock farm.



CORNELL IS WELL REPRESENTED IN THE POULTRY DEPARTMENTS OF THE VARIOUS AGRICULTURAL COLLEGES OF THE U. S.

Perhaps the activities of the Association can best be shown by listing some of the most active members and showing what they are doing at the present time.

1904. C. A. Rogers, '04, President. Formerly Assistant Professor of Poultry Husbandry at Cornell. Now pro-

1905. J. H. Moody, Superintendent of the Harriman Farms, Harriman, N. Y.

1905. L. G. Thayer, Proprietor and Manager of a Poultry and Truck Farm near N. Y. City.

1906. H. S. Martin. Merchant and Poultryman.



1906. H. F. Prince, '07, President. Proprietor of Fruit and Poultry Farm in Colorado.

1907. R. C. Lawry, '10, President. Proprietor of Yesterlaid Poultry Farm Pacific, Mo.

1907. C. F. Boehler, '09. Landscape Architect, Toronto, Canada.

1907. P. W. Kimball, Supt. of Yesterlaid Poultry Farm, Pacific, Mo.

1908. L. F. Boyle, '10, President. Manager of Truck Farm in Utah.

1908. W. O. Strong, King's Mill Farm, Grove, Va.

1909. F. S. Jacoby, '10, President. Professor of Poultry Husbandry, Ohio State University, Columbus, Ohio.

1909. T. E. Schreiner, Sp., Supt. of poultry farm, Atlanta, Ga.

1909. H. B. Rogers, '13, County Agent, Chautauqua, Co.

1910. E. W. Benjamin, '11, PhD., '14, President. Assistant Professor of Poultry Husbandry, N. Y. State College of Agr., Cornell.

1910. J. E. Dougherty, '11, Professor of Poultry Husbandry, Davis Agricultural School, Davis, Cal.

R. V. Mitchell, Special. Assistant Professor of Poultry Husbandry, N. H. Agricultural College.

1911. O. B. Kent, '13, President. M.S. '14. Instructor in Poultry Husbandry at Cornell.

1911. P. R. Guildin, '13. Proprietor of fruit farm, N. J.

1911. Pound, '13. Proprietor of poultry and fruit farm, N. J.

1912. G. H. Masland, President. Proprietor of poultry farm, Newtown, Pa.

1913. H. A. D. Leggett, '14, President. Agricultural Instructor of Poultry, Olericulture, and Allied Sciences, Vocational School, Springfield, Mass.

1913. T. J. Conway, '14, Assistant in Poultry Husbandry Texas Experiment Station.

1913. H. C. Kandel, '14, Instructor and County Adviser, Berkley, Mass.

1914. A. B. Dann, '14, President. Instructor in Poultry Husbandry, N. Y. State College of Agriculture, Cornell.

1914. T. B. Charles, '15, President. Assistant in Poultry Department at Cornell.

#### CORNELL AG. MEN IN THE U. S. DEPARTMENT OF AGRICULTURE.

There are at present residing, or officially stationed in the city of Washington, about 65 graduates and former students of the College of Agriculture at Cornell. Of these there are at least 60 enrolled on the scientific staff of the United States Department of Agriculture. The Bureau of Plant Industry, the largest in the Department, claims 43 of the 56; the Bureau of Animal Industry employs 9; the Bureau of Entomology 5; and the Bureau of Soils, the Bureau of Chemistry, and the Office of Experiment Stations 1 each. One graduate is the chief of the Bureau of Mines of the Department of the Interior, one is in the Patent Office and one in the Bureau of Education of the same Department, one is in business in the city, and one is connected with the Chinese Legation at Washington.

'77, B.S.—Leland O. Howard. At the recent meeting of the American Association for the Advancement of Science, held in Philadelphia Dr. Howard, who is Chief of the U. S. Bureau of Entomology, was reelected permanent secretary of the Association for a period of five years. During the course of the meeting Dr. Howard and several other prominent scientists expressed their willingness that their brains should be used for scientific study after their death. This action on the part of such scholarly men is expected to result in a distinct contribution to the science of Neurology.

'81, B.A.—Joseph A. Holmes, Chief of the Bureau of Mines of the U. S. Department of the Interior, has been for some time at Fort Bayard, New Mexico, where he is slowly recovering from a protracted illness. During the past year Dr. Holmes has been President of the Cornell Club of Washington, a position to which he was re-

cently unanimously reelected. It will probably be six months more before he can return to Washington.

'98, B.S.A., '01, D.V.M.—A. R. Ward, has just been promoted to the responsible position of Chief of the Pathological Division of the Bureau of Animal Industry in the U. S. Department of Agriculture.

'02, B.A.—Miss Clara W. Hastings is part owner of a successful poultry farm at Homer, N. Y. After graduation she accepted a clerical position in the manufacturing plant belonging to her father. This position she held for the next nine years. At the end of that time she decided to start in the poultry business in a modest way, first coming back to Cornell to take the short course in Poultry Husbandry.

In March 1912, she purchased a second hand incubator. By running this twice she obtained several hundred chicks in May. At that time her father's plant was destroyed by fire, and it was decided to move to a farm. In the meantime she had bought another incubator and had placed orders for 1700 baby chicks, and several houses. In the fall of 1912, there were 600 pullets. This number was increased to 1000 by the next year and a mammoth incubator was installed. Last year another section was added to the incubator and the flock increased to 1200. It is planned to further increase the flock this year up to 2000. Only utility S. C. White Leghorns are kept. The egg production from September, 1913, to September, 1914, was 138,768 or an average of 138 per fowl.

'04-'05, W.P.—The former students of Chautauqua County have formed a club that takes in all the students of that county. The purpose of this club is educational as well as social. Their third banquet was held during the holiday season at Jamestown. About 85 attended, Professor Burritt delivering an address.

Professor A. R. Mann has been very helpful in the interests of this club. H. H. Harriman writes of this club very enthusiastically. He states in part, "Am glad to let the boys know that there is an organization, without a constitution or by-laws, that has stood more than two years because of the real merits of the club. Practical questions that come before the monthly meetings, sharpen the wits of the members, act as spurs to the future farm work, and keeps active the meetings. \* \* \* \* Would that every county had a club." Harriman is at present traveling for a Cleveland firm. His home is in Chautauqua County, N. Y.



MRS. JAMES S. LANGFORD, SHUSHAN, N. Y.,  
FORMERLY MISS WITHERELL, W. P., '12

'06, W.C.P.—We are in receipt of a very good account of what C. W. Joslin has been doing since he left Cornell. We take the liberty to print it word for word.

"In reply to your requests about my poultry work since leaving Cornell I will say that it has not been on a very extensive scale as I am in partnership with my father in general

farming on the old Joslin Homestead that has been in the family's possession for more than a hundred years.

"We have at present 800 white Leghorns and a trade with one of the best grocery stores in Troy, to which we have shipped eggs for eight years. The eggs are cleaned, graded and stamped with our name and address which we have tried to make mean quality.

"I also took some work in Horticulture while at Cornell and soon after getting home planted an orchard of apples, pears, plums and cherries for fillers. They have done well and gave a large crop this past season.

"We also planted part of the orchard to strawberries, raspberries, etc., and placed the Cornell type of colony houses near these. The shade of the raspberries and the trees makes a good place for the chickens and they help in developing the orchard and in producing some large crops of berries. Because of lack of efficient help we have had to cut down the berry plantations and reduce our acreage of potatoes, putting the most of our efforts on the farm to growing grain crops.

"We raise some colts, a small herd of cows, the milk being sold to parties from Boston and taken at the farm by teams that collect it in this section and deliver it to the stations for ten cents per hundred pounds.

"As to future plans I think the poultry part will be large enough, with the other farm operations, when we reach a thousand layers. For I think the poultryman will stay in the poultry business much longer if he runs his business more along the line of a poultry farm than a poultry plant, meaning by that to be able to raise part of his own feed, and giving part of his time and employee's time to dairying as general farm work, for the two work well together and on many of the eastern farms, the farm income can be doubled by a good sized flock of layers, the farm fertility increased and the amount of either stock crops raised need be no less, and probably

be much safer than either poultry or crops alone."

We wish to thank Mr. Joslin through these columns for his lengthy letter. It is only in this way that we can let you know where your old friends are, or tell them about you. We have met with a great response to our requests for material and pictures for the Former Student Notes of the last few issues. From now on we are going to rely more on the former students themselves for support. The ball has started rolling and with a few lines or more from you every once in a while we can keep these columns full of notes and of pictures of the Former Students at work.

'09, B.S.A.—E. E. Eldridge, has left the Federal Bureau of Animal Industry to become Scientific Manager of the Phoenix Cheese Co., of New York, with headquarters at S. Edmeston, N. Y.

'09, B.S.A.—Miss Alice Evans, who was doing graduate work at the University of Chicago last fall, is now in Washington with the Bureau of Animal Industry, for whom she has commenced an investigation of the bacteriological and mycological characters of fancy cheeses.

'09, B.S.A.—Since leaving college E. G. McCloskey has been engaged in educational work at the Agricultural High School at Sparks, Md. This is secondary education of strongly agricultural and vocational nature in a very truly rural community. It is educational work very much like agricultural college work in its scope except, of course, that it is not as broad. It does, however, carry out all the phases of school, demonstration, experimental, and extension work, and now he even has a school paper, agricultural in every way, and the only one that is known of in the country coming from secondary school.

'10, M.S.A.—"The Relation of Genetics to the Improvement of Sugar Cane," is the title of a pamphlet recently published by H. B. Cowgill,

and printed in the *International Sugar Journal* for 1914. Cowgill is in charge of the Sugar Cane Breeding Experiments, at the Porto Rico Sugar Producer's Experiment Station.

'14, B.S.—We have received a long letter from Chas. H. Ballou, who, after his graduation last June, went to Cuba to work as a pomologist for a contracting concern. These concerns make a business of caring for the property of a number of owners, doing all the work from clearing the land to marketing the fruit after the trees have reached maturity. One of these concerns now has over 500 acres planted to citrus trees, 10,000 of these trees were planted this fall. Soon he saw that it would be better to start out for himself as an Agricultural Expert, as there was no one to handle that side of the work.

Ballou therefore has the title of Agricultural Expert, with his office at La Gloria, Cuba. His work consists in making examinations of whole groves, or individual trees that need attention, and making any recommendations that may be necessary for



BALLOU SEEKING THE SHELTER OF A 5 YEAR  
OLD MARSH POMELO (GRAPE FRUIT)  
TREE



"FROM PRODUCER TO CONSUMER." BALLOU AS PRODUCER, ON THE CULTIVATOR,  
A FRIEND, MR. BYRNE AS CONSUMER IN THE FOREGROUND.

the well being of the trees. If an absentee owner desires to know the status of his grove in detail, he makes out a tabulated summary for the owner, giving the condition and quality of each tree, and the amount of fruit to be expected. He then makes a chart, upon which the condition of each tree is indicated in its proper location. Where pruning or other work is needed, he directs the men himself.

La Gloria, where Ballou lives has a population of about 1000, most of whom are settlers from the United States. The place is very beautiful as well as very healthful and he says is an ideal location for either a summer vacation to avoid the heat, or a winter vacation to avoid the cold.

'07, B.S.A.—The first year after graduating H. H. Schutz farmed his own place; the next he left a young fellow in charge of it while he managed a 600 acre farm a few miles distant, remaining there until an offer presented itself to become one of the faculty of the New Mexico Agricultural College. After two years spent there, an offer came of the management and part ownership in a 4,000 acre irrigated farm at Los Lunas, N. Mexico, where he is located at present. Schutz has reached the point where he longs to get on about five acres of land which he can handle alone without the necessity of herding Mexicans, even through the interposition of a foreman.

'08, W.P.—W. H. C. Ensign after his departure from Cornell was manager of the poultry department of the Brook Hill Farm at Genesee Depot, Wis. He was in that position for two years, winning a record for winter egg production.

Since then he has made many changes in location for the purpose of the investigation of methods on large and well known plants. By doing this he has been able to observe the causes of success and failure in the poultry world. He has come up

against many of the problems and has seen many theories proved and disproved. Ensign adds that he has never met the Cornell "Short Horn" who was not glad that he had gone to Cornell.

'08, B.S.A.—Miss Ethel Gowans, is now in Washington, D. C., engaged in school garden work in connection with the Bureau of Education of the Department of the Interior.

'07-'08, W.C.—We are in receipt of a little booklet from F. B. Roberts who attended here in '08. The booklet is a list of the speakers and their subjects for the use of the grangers and other agricultural associations of the State of Maine. He is one of the speakers, the subjects of his lectures being as follows. "How to Make Poultry a Source of Income on the Farm; How to Produce and Maintain a High Laying Strain; Vigor, Breeding, Feeding and Housing in their Relation to Successful Production of Poultry and Eggs." He and John A. Roberts, the Commissioner of Agriculture of the State of Maine are the owners of the Highland Farms at Norway Maine.

'07-'08, W.P.C.—On leaving Cornell, E. R. Stone took charge of the Poultry Plant at Pencoyd Farm, Bala, Montgomery County, Pa., which is noted for Single Combed White Leghorns and Guernsey Cattle. He was there for two and a half years and from there went to Clifton Springs, N. Y., where he had charge of the Plant at the Sanitarium Farms. He was there three years and then came to the Vandercamp Farms, Cleveland, N. Y., owned by F. C. Soule & Sons, of Syracuse. This farm is noted for Holstein Cattle as well as White Leghorns.

The farm is composed of 15 acres devoted entirely to the poultry. About 1600 S. C. W. Leghorns are now kept, and an incubator plant of 3000 eggs capacity.

*Continued on page 513.*



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having us replace them with houses of ours, like his other ones.

He claims he would be many dollars in pocket if we had built for him at the start.

Think it over and if you want to get in a good paying business talk it over with us by mail or in person.

For over half a century we have been building greenhouses and we think we know something about how they should be built.

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### My Experience with Poultry

*Continued from page 490.*

care of, and he did the very best he could, but I immediately sacrificed twenty on my return. It was simply that they had been pushed aside by stronger birds, and hadn't received the nourishment necessary. I see to it that all receive enough food at every meal. I counted these against my record, which, of course, reduced my percentage.

If everything I learned in the course at Cornell was to leave my mind, one thing would remain and that is the great importance of "Constitutional Vigor."

Never will I forget that expression for therein lies one of the great essentials for success in the poultry business. Birds without "constitutional vigor" will not hatch strong chicks that will lay a large quantity of eggs. For the purpose of breeding we begin culling our early moulters and keep only our late moulters and fine vigorous birds. We do not try to have our breeders lay winter eggs, preferring that they save their strength to produce strong chicks in the Spring. We do not believe in pullet eggs for hatching and never even mate our pullets as we do not care to sell to some one else what we would not use ourselves.

We attribute what success we have had not to luck, but to hard work and looking after details. No night is too stormy nor too cold for us to go out and see if the chicks are comfortable or getting all the heat in their brooders that they should. I have known Mr. Bott, not ordinarily a patient man, to sit on a soap box in a brooder house watching a refractory burner until two o'clock in the morning and he wouldn't have left until

daylight if it had been necessary for him to stay.

When we "Back to the Landers" first started in the poultry business we were the subject of many a joke and laugh on the part of our neighbors, but now they are very glad to ask us for advice, and to consult us whenever they have a hen with the "pip." We have started four people in our immediate neighborhood in the business, one of whom is a retired Railroad President who wants to return to the simple life, and who will "make good" with his poultry as he has in the past in other spheres.

A neighbor once said to us "No wonder the Botts make money with their chickens, they live with them." Wherein is the disgrace in living with perfectly well bred hens?

We follow the Cornell system entirely for we feel that Cornell has made a thorough study of this subject and we are willing to abide by the results of experiments of Professor Rice and his able assistants.

We lay no small part of our success to our market. We sell our eggs to hotels, restaurants and clubs where we obtain above the market price. Every egg is immaculate and they are packed in a special kind of carton in new cases. No wonder they look good enough to eat, these perfectly white eggs, absolutely spotless. No wonder we could sell them as many eggs as we produce, for our customers know absolutely the quality will be maintained.

Summed up, the essentials for success in the poultry business are:

Chicks and hens of strong "Constitutional Vigor."

Plenty of food (Cornell Rations).

A good market.

Good care and infinite pains with great stress on the "pains."

---

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# POTASH

is food for thought  
as well as for crops  
this year.

When shipments were interrupted by the war, it was estimated that there was enough Potash on hand in the United States to provide two and three per cent Potash in mixed fertilizers for this spring's trade. Some manufacturers had more than enough for these percentages.

Since then minor sources of Potash have been fully utilized, and additional shipments from the usual source are still being received.

The supply is below normal, but this need not prevent farmers securing some Potash in their fertilizers, nor should it lead farmers to decide not to use fertilizers.

There is no reason to return to the out-of-date goods without Potash, although some authorities may try to "wish" them on us.

We have not used enough Potash in the past. The largest annual import of Potash was only one-seventieth of the Potash *taken from the soil* by our 1914 corn crop and only one-fifteenth of the Potash lost every year in drainage water.

Spring crops use from two to ten times as much Potash as Phosphoric Acid. Get as much Potash in the fertilizer as possible. A few firms are offering to furnish from four to ten per cent.

There is no substitute for Potash. It may be harder to get just now, but **POTASH PAYS.**

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## CORNELL POULTRY

A few cockerel pullets and mature breeding hens will be offered for sale for October and November delivery.

**Breeding Stock:** A good supply of Single Comb White Leghorn breeders is available and poultrymen should let us know their needs. A few good breeders of the following varieties may also be furnished: Barred, White and Buff Plymouth Rocks, Rhode Island Reds, Mottled Anconas, Pekin, Rouen and Indian Runner Ducks and Toulouse Geese.

### Four Good Records by S. C. White Leghorns

	Eggs laid 1st year	Eggs laid 2d year	Eggs laid 3d year	Total Eggs laid 3 years
Lady Cornell	257	300	191	648
Madam Cornell	245	131	136	539
Cornell Surprise	180	186	196	562
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*Write for Prices*

**Successful Poultry Keeping**

*Continued from page 495*

A vital factor in making a plant pay, is culling out drones, and keeping down feed bills.

The method I use is: In spring all broody hens are put in a colony house, and shipped to market alive as soon as I have enough to fill a crate. As it takes about a month to get broody hens laying, and then the chances are they will get broody after laying a few eggs, it is more profitable to sell at once, saving labor and feed. By this method, broody hens are never used as breeders.

After the high spring egg production on large commercial plants, a number of hens stop laying.

About the first week in June I go over all pens taking out all non-producers. These are shipped to market alive, at once.

For example—on June 1st we had 1962 hens; egg production 920; culled out 549 hens, (practically all before June 15th). July 1st hens 1413; egg production 906. By this method the feed bills follow production, and drones are sold early while prices are high.

This culling is repeated in July, August and September. In October they are gone over for molting and weight. The final selection being made in November.

We do not use for our own breeders any hen that does not weigh 4 lbs. or over, or starts to molt before October selection. These heavy, late molting hens are mated to 5 lb. or heavier cockerels of known parentage. These are from 12 hens that did not molt until after November 1st, and weighed 4½ lbs. (or more) and a strong, vigorous 5 lb. cockerel. This spring I will use a 5¾ lb. cockerel from the above mating to 12 special hens, for next year's cockerels.

With efficient management and care poultry can be made one of the best, if not the best paying branch of agriculture.

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## Former Student Notes

*Continued from page 508*

The chief business of the farms is to furnish pure White Leghorn eggs for the fancy New York City trade. This plant is still in its infancy, and will be increased as fast as the business will warrant.

'10, Sp.—In June, 1910, Miss M. V. Laudmann took up the management of the farm at the reform school for girls at Darlington, Pa., and has since been engaged in that work.

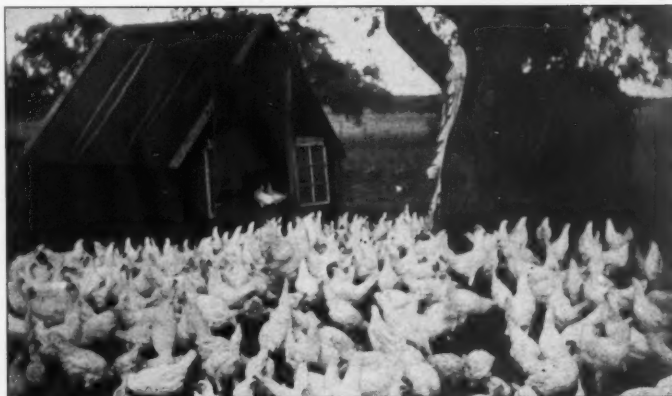
This school is a community of five hundred people, the girls performing all farm and garden operations, except the heavy team work.

'10, W.P.C.—A. T. Moir was instructor in incubation and brooding under Professor Rice during a period from February 2, 1909, to March 1st, 1910. Since then he has been working in the Service Department of the Hall Mammoth Incubator Co. of Little Falls, N. Y. He is employed as a travelling expert; going from plant to plant to assist poultrymen in solving incubator and brooding troubles. His address is 49 Birch Street, Manchester, N. H.

'10-'11, W.P.—L. B. Carpenter is the proprietor of the Oak Knoll Poultry Farm, which is located at Pittsford, N. Y. He has been in the poultry business for four years. At Oak Knoll large S. C. White Leghorns are bred for the heavy production of

large uniform white eggs. The same method of selecting breeders as is used at the College is employed, and Cornell balanced rations, are used.

'10-'11, W.P. C.—Miss Clara M. Chase sends us an account of her poultry plant at Gates, N. Y. Gates is located two miles from Rochester. She is on a 63 acre farm belonging to her father. After taking the Winter Course she started in with White Leghorns, purchasing eggs from Professor C. A. Rogers of Bergen, who has the Cornell strain. From those

*Continued on page 516*

Upper—CLARA M. CHASE, W.P., 1910-'11, GATES, N. Y., A SUCCESSFUL POULTRY WOMAN.  
Lower—THE BIRDS ON THIS FARM SHOW EXCEEDINGLY HIGH CONSTITUTIONAL VIGOR.

## Dewey's READY RATION

Guaranteed Analysis: 25 per cent Protein, 7 per cent Fat, 9 per cent Fiber, 50 per cent Carbohydrates.

Composition: Eagle Distillers' Dried Grains, Choice Cottonseed Meal, Old Process Linseed Oil Meal, Winter Wheat Bran and Middlings, Pure Hominy Feed, Malt Sprouts,  $\frac{1}{2}$  per cent Salt

Dewey's Ready Ration, when fed in connection with the home grown hay, straw, fodder, ensilage and roots forms a perfectly balanced ration. It is complete grain ration for dairy cows. No other feed or grain need be fed with it.

### The Feed Question

The feed question is not or should not be one of price per ton, but of how much milk each dollar's worth of feed will produce. Dewey's Ready Ration is worth all it costs, because it is scientifically blended from the highest grade feeds to produce for you all the milk possible for each dollar that you pay. "The proof of the pudding is in the eating." Try Dewey's Ready Ration. Give it a chance to convince you.

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# The Cornell Countryman

### Former Student Notes

*Continued from page 515*

eggs about 200 pullets were raised the first year. Each year the numbers have been increased until now there are 500 pullets and at least 600 hens for brooders. These are kept in two laying houses, one 20 ft. by 80 ft. of four pens; the other 20 ft. by 110 ft. having five pens and a 10 by 20 ft. feed room. Both these are the Cornell type of laying house and have three-quarter partitions. Instead of using muslin curtains, the horizontal window of each pen is hinged at the bottom, and this can be let down entirely or put back any distance, but is never entirely closed. This arrangement is found very satisfactory.

The day-old chick business and custom hatching are both profitable, the former being very profitable up until the middle of June.

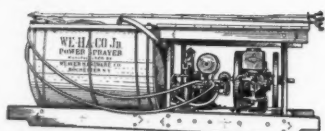
'11, B.S.A.—Frank Hahnel, after hunting around the West for two years for a suitable location has decided that New York is the best place for him and is now getting into shape a 180 acre general farm near Yale, N. Y. His address is Romulus, N. Y., R. F. D. 2.

'12, Sp.—G. Lester Smith is a salesman for the Rex Company, which makes arsenate of lead. During the summer he looks after three fruit farms near Geneva.

'12, B.S.—Don E. Ward is with the U. S. Dept. of Agriculture, engaged in Field Investigations in Pomology for the Bureau of Plant Industry. The following is a summary of his career since June, 1912. In the summer of 1912 he entered the Department of Agriculture as a Scientific Assistant, the work consisting chiefly of investigation and study of grape growing in the north-eastern states and the study of varieties and different methods of pruning, cultivation, and fertilization of grapes in the Ex-

*Continued on page 518*

Where you saw it will help you, them and us.



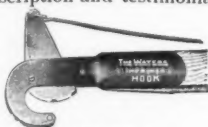
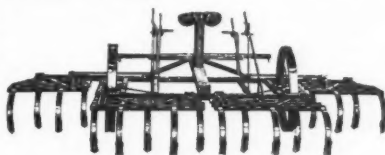
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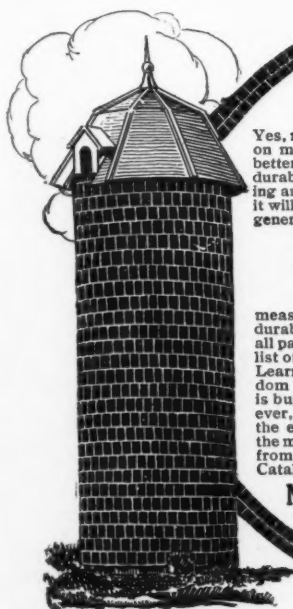


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**PURE BEEF CRACKLINGS**

**BEEF  
SCRAP**

**THE FLAVELL CO.**

**ASBURY PARK, N. J.**

**Former Student Notes**

*Continued from page 516*

periment Vineyard at Vineland, N. J. About a year ago he was transferred to the Office of Fruit Identification where he has been to the present.

In that office a complete record of all varieties of fruit, together with descriptions and paintings of the same are kept. In some cases, as with the peach, plum and cherry, a collection of the pits of the different varieties are kept on file for use in identifying these varieties. Fruit is received in this office from all parts of the United States for identification and naming, as well as new varieties for testing and recording, if worthy of propagation. More apples are received for identification than of any other fruit.

'13, B.S.—Kenneth R. Boynton's address is Care Bronx Park Botanical Garden, New York City.

'13, B.S.—E. C. Crippen is running his father's 160 acre farm at Brockport, N. Y. He harvested a good crop of Baldwin Apples this year.

'13, B.S.—O. U. Schaeffer attended the 1913 Summer Session, served as principle of a Boys' Agricultural School at South Lee, Mass., for six weeks, then travelled through the Middle West for three months studying agricultural conditions.

During the spring of 1914, he was connected with one of the largest nurseries around Rochester, N. Y., gaining some very valuable experience in that business.

During the past summer he was engaged in trimming fruit and ornamental trees, spraying, and tree surgery in Rochester.

He was married to Miss Pearle Siems, of Albion, N. Y., on August 5, 1914. At present he is engaged in the poultry business and the growing of small fruits and vegetables near Albion, Orleans County, N. Y.

'12-'13, W.P.C.—W. J. Buss, of the Agricultural Experiment Station

*Continued on page 520*

Where you saw it will help you, them and us.





Light your house and Barns  
Cook your meals with  
**HOME-MADE ACETYLENE**  
and make your acetylene with a  
**PILOT LIGHTING PLANT**

PILOT plants make Acetylene automatically a little at a time as you use it in your gas cooking stove and in your lights distributed throughout your house, your barns and out-buildings. You simply fill the generator with the gas-producing stone "Union Carbide" and water about once a month.

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All told, over 250,000 country homes are using Acetylene made the PILOT way.

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Eastern Works, Newark, N. J.

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For lightening clay soils and sweetening sour ones, for increasing the vigor and brightness of grass, for decreasing the growth of weeds

100%	pass	25 mesh screen
95%	"	50 " "
90%	"	100 " "
61%	"	250 " "

Our lime is the finest ground, making it immediately available for crop raising thus assuring the farmer quick returns.

*N. Y. A. Ex Sta. Analysis*—Cal. Carb. 53.75, Mag. Carb. 45.50, Total Carb. 99.25  
As you see, 100 lbs. of our Lime is equal to 105 lbs. of any pure Cal. Carb. for neutralizing soil acidity.

No acid soils will not produce  
A clover sod that's fine,  
So if I have a sour soil  
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At the Meridale Farms emphasis is placed upon production, while correct dairy type is a characteristic of each of the four families represented.

The average yield of 135 tested cows last year was 7892 lbs. milk, 512 lbs. butter per cow, which indicates the high producing ability of the herd.

Booklets on request.

**Ayer & McKinney**

300 Chestnut St.

PHILADELPHIA, PA.

## Former Student Notes

*Continued from page 518*

at Wooster, Ohio, gives the following account of himself and a description of his poultry plant.

"Since leaving Cornell in February, 1913, I have been in charge of experimental work with poultry at the Ohio Agricultural Experiment Station. Very interesting results in comparison of range and confinement for laying hens were secured during the past year. Two lots of 57 S. C. White Leghorn pullets each, fed and housed alike, one lot having access to a well sodded plot of bluegrass, while the other was confined to a very small bare lot, were used in this experiment during the past year. The pullets on range averaged 182 eggs each, while those in confinement averaged 139.

During the past summer, Mr. F. K. Shibley and I purchased a 30 acre tract of land situated on the electric line 6 miles north of Wooster. This is to be developed into a commercial egg farm. The farm is ideally located for this purpose. The egg cellar is only 50 feet from loading platform on the electric railway. The farm is only 2 hours ride from Cleveland, where eggs will be marketed. A siding 200 feet from the feed room, is used for unloading grains, straw, etc. An electric motor is used to supply power for grinding feed. Current for operating motor is secured from the railway company at very reasonable rates. The cost is about 12 cents for grinding 100 bushels of corn.

We have at present 1,800 S. C. White Leghorns, which we hope to increase to 6,000.

Two laying houses, 24 x 108, 4 brooder houses 14 x 28 and an incubator cellar 24 x 32 with feed room above, have been erected. Two 3,000 egg incubators have been installed. Coal burning brooder stoves will be used for brooding chicks. Our farm is known as the "Everfresh Egg Farm."



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No danger from frost, cold  
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Enables you to set out your plants two to three weeks ahead of the other fellow. The same thing can be done with all kinds of seeds and plants.

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## CANTALOUPE GROWERS

that is a gold mine to the man who grows for the early market. Cheap enough to use 'em by the thousand.

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and any kind of vegetables can be matured two to three weeks earlier than by any other method. Take the hint—it's the early crops that bring in the money.

Send for my big 40 page catalog beautifully illustrated with pictures and letters from the leading Agricultural Experiment Stations as well as customers who have tested and proved beyond a doubt that there is a new era in store for the produce grower who realizes the importance of being first fiddler on the early market. Write now; delay means lost opportunity. Costs you nothing but one cent on a post card, and it may mean the difference between loss and profit this coming season.

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**Are Cheapest**  
because  
**They are BEST**

¶ You pay more for certified milk than for dipped milk and it is worth it. There is more value in it; more work has been put into producing it, and even at a higher price you get value received.

¶ So it is with Fruit Trees. I put extra care into the cultivation of my trees; I bud from parent trees that I know are true to name, and productive sorts. I give the greatest value for one dollar that you can get.

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Send a postal now. It is free.  
Whether you want one tree or are planning to set an orchard write me or come and see me.

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—for one man to milk 20 or more cows with a B-L-K Milker than it is for two men to do the same number by hand.

Ordinary farm hands, too, can produce certified milk in ordinary stables by exercising reasonable care in handling the easily cleaned machines.

## B-L-K Milkers

cut cost and labor of milking in two

If you are interested in producing high-grade milk, and greater profits, then write us.

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Illustrated and full of information

**FREE**

If, when writing for the booklet, you will send us a rough plan of your barn and tell us the number of cows you want to milk, and state what power you intend using, we will tell you about what a B-L-K Outfit will cost you. But send for the booklet by all means.

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that it cleans far beyond what the eye can see, removing thousands, yes millions of bacteria, the destroyers of the food value of milk and milk products.

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Sold only by reliable dealers whom you know—never peddled. 1½ lbs. 25c; 5 lbs. 60c; 25-lb. pail \$2.50; except in Canada and the far West.

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Kills lice on poultry and all farm stock. Dust the hens and chicks with it, sprinkle it on the roosts, in the cracks or keep it in the dust bath, the hens will distribute it. Also destroys bugs on cucumber, squash and melon vines, cabbage worms, etc., slugs on rose bushes, etc. Comes in handy sifting-top cans, 1 lb. 25c; 5 lbs. 90c; except in Canada and the far West. I guarantee it.

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Dear Sir—I wish to thank you for the courtesies extended to us during our recent visit to Dansville. After a most thorough inspection of your nursery stock I wish to state that we were especially pleased with the wonderful growth made by your stock and cleanliness being free from scale, insects and fungi. The growth made by apple, peach and cherry stock is the greatest and sturdiest I have ever seen. Our inspection of your stock was simply one of many; however, as the result of our visit, we enclose our order for 1000 apple trees as named.

Yours truly,

EWELL D. BAKER.

F. W. Wells, Dansville, N. Y.

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Yours truly,

EWELL D. BAKER.

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for my FREE ILLUSTRATED CATALOG

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Extra Size Apple Trees  
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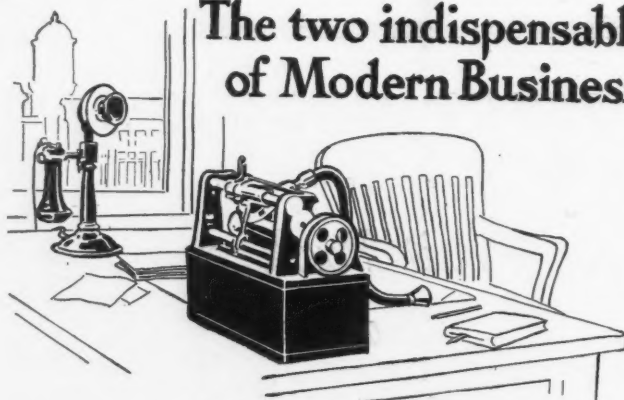
In a healthful locality; offering the advantages of practical farm land within two hours of our greatest city, with assured value enhancement; acknowledged fruit land and entrancing natural country

Prices range from ten to one hundred dollars per acre, with liberal terms. Among my patrons are several former Cornell students.

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- ¶ You can throw it into a suit case along with your shootingtogs and leave your gun case at home.
- ¶ We furnish the 20 gauge in all grades hammerless, weighing from 5¼ to 5¾ pounds and selling from \$19.00 up.
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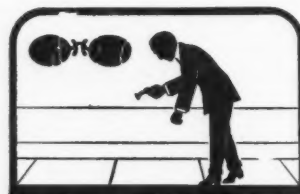


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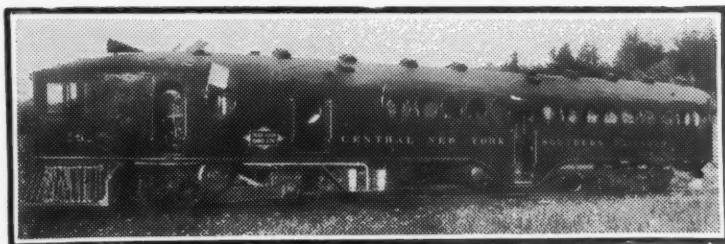
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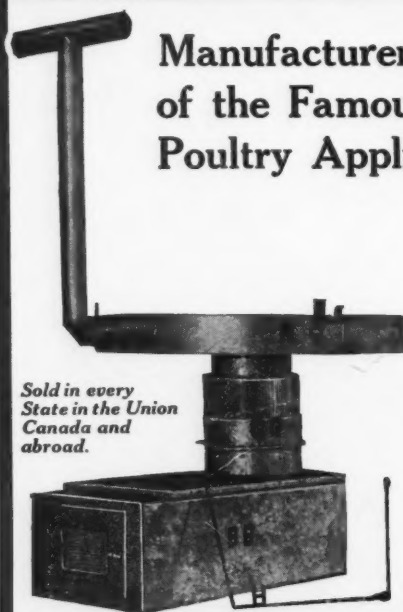
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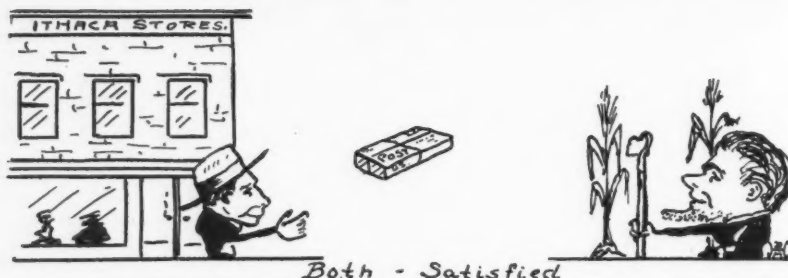


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